# SAILPLANE & GLIDING

June – July 1967

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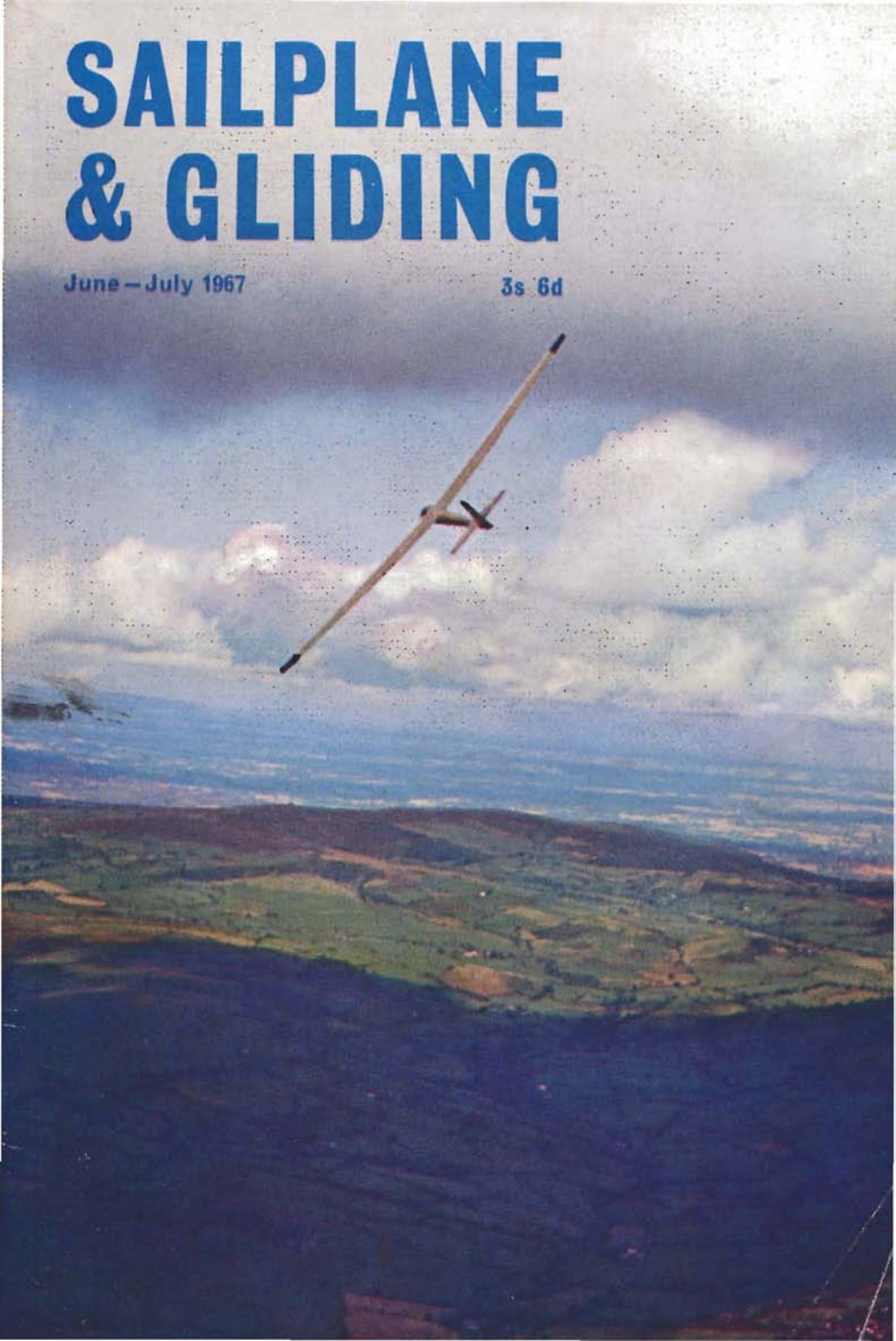

# WHERE ARE YOU?

Keep your airfield recognition up to scratch by giving a name to this airfield somewhere in Britain. If you don't know it or guess it straight off, here are some clues to help you.

The name of the Airport Station Commandant is Wing/Cdr. C. V. Ogden.

The name of the Fuelling Supervisor is J. H. Rigg.

The main runway headings are 04/22 and 13/31.

The height of the airfield is 220 feet AMSL.

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**GOT IT YET?**

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# SAILPLANE & GLIDING


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*Cover photograph*: Skylark 4 flying over the Long Mynd. Photograph by Jane Warter.


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# THANK YOU

By Rhoda Partridge

IT'S no good, I just can't think of myself as a pilot (and I'm not the only one that can't). Me, I'm a Mother-of-five and a Potter, and I'm in the Full Flower of my Middle Age. A pilot is something quite different. He's dead dashing. He's probably a private owner. He understands competition scoring and the adiabetic lapse rate and leagues and wing loadings. But the most fascinating thing about him is that, like the chained-to-the-railway-line heroine of early film melodramas, he gets in and out of the most horrible predicaments. "And there I was, at 200 ft. over this steel-works,


heavy sink, and the car park full." Well, you can see that he extricated himself all right, because there he is, leaning against the bar, smiling modestly.

So there I was, strapped into this Super Javelot on the airfield at Fayence —me, Mother-of-five, Potter, Full Flower of Middle Age, not a pilot—remember? I'd had two tows through the rotor and had scared myself into fits. The previous week a chap had been flipped clean over onto his back on tow, at 150 ft. It could happen again. They were so kind, they showed me how the oxygen worked and told me I must be careful not to get blown back, and that I mustn't go behind the downwind fence when I came in to land, and I must have at least 1,500 ft. for my final approach, and I wished that I had the nerve to undo the straps, climb out and say: "May I go home now, please?"

A moment later the Storch was dancing about in front of me like a great drunken daddy-longlegs, and there I was,

me, Mother-of . . . (oh well, never mind), crashing about behind, the cockpit full of dust and small stones, just like a rug being shaken. He waved me off at 3,300 ft. and I kept station with one metre up. Then I lost it, then I found it, then I lost it again and all the time I was darting frantic glances at the airfield to make sure it was still there. Then, suddenly, there was a last bang of turbulence and I started to climb smoothly with 1½ metres up. At 12,000 ft. I put the oxygen mask on, like the gentleman said, and I finally lost the wave at 16,500 ft. I searched around, keeping a beady eye on the airfield (now the size of my thumbnail) because it had a mean way of sneaking off ahead of me. I didn't find the lift again, damn it, and the big lenticular had dissapated and I admit that I had a sudden great urge to plant both feet firmly on the ground. So I opened

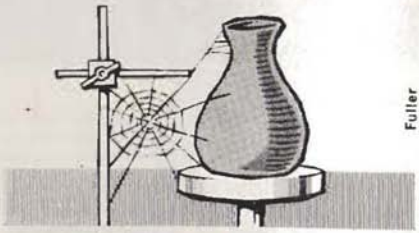
the brakes and came down steadily, planning to arrive with 2,500 ft. upwind of the airfield. At 3,500 ft. the turbulence

hit me again, crash, bang, bump. The landing was a question of stand her on her nose and hold your thumbs.

That night, in the bar, champagne flowed like water. There had been four Golds and five Diamonds (wish I'd got a Diamond, but I suppose it would look a bit off on my C badge). I was deputed to make a speech in French to thank Monsieur Gendron (the C.F.I.) and the tug

pilots, who had been really magnificent, 5½ hours towing each. There was a good deal of kissing on both cheeks. Charming continental custom, that. But my mind was still full of range upon range of snow-capped mountains and the great sharp-edged lenticulars and the curve of the coast with the lovely towns and coves and inlets and islands.

I'm writing this to offer my most warm and heartfelt gratitude to the instructors who guided my first trembling circuits six years ago and had the iron nerve to send me solo. To the people who take on dreadful jobs like Treasurer and C.F.I. and Chairman and President and Secretary. To the people who mend cable breaks on icy days. To the B.G.A., who run gliding with such scrupulous care that I can tell my husband that it isn't dangerous and quote statistics to prove it. To you people at SAILPLANE & GLIDING who amuse and try to educate me (its not your fault, I'm a bit dim). To instructors who patiently answer my questions and still help me so much. Thank you all. If it wasn't for you lot, 6 p.m. 28th February, 1967, wouldn't have seen me perched in a blue sky over a crazy line-up of snowy mountains—I'd have been at home doing the ironing.




# WIN A SWALLOW COMPETITION

FIFTY-FIVE clubs have entered 244 pilots for this competition. All have been sent a copy of the training book "The Solo Glider Pilot" produced for the B.G.A. by W. D. & H. O. Wills who initiated this contest; as well as a special brochure on the Swallow, produced by Slingsby Sailplanes. Clubs have been sent the first training syllabus, which has to be completed by the 7th May, when the C.F.I. will test all the candidates in his own club, and put forward the best for the semi-finals.

The semi-finals will be held at 10 Regional Centres on 1st and 2nd July.

# VARIOMETERS

By HARRY COOK

EVER since Icarus noticed that the wax on his wings was melting, people have been thinking about vertical speed and how to control it.

Naturally, in order to control vertical speed it is necessary to be able to measure it. Although it is probable that Icarus did not have time to develop his interest in vertical speed far enough to invent a variometer, we know that Kronfeld did.

We know that Kronfeld's variometer was capable of greater sensitivity than those in use today. So, if Kronfeld could build for himself a variometer of great sensitivity, why do people go on inventing better ones? And why do we have electric variometers which are no more sensitive than Kronfeld's home-made one?

In order to find the answers to those questions let us try to define clearly what it is that we expect a variometer to do for us. Obviously we want it to be able to tell us whether we are going up or down, and how fast. But we must be more specific than that because it is easy to see that a vario which would be quite satisfactory in good and easy soaring conditions with plenty of big thermals giving rates of climb over 500 ft./min. might be quite useless when, in late afternoon, for example, thermals are few and far between, only just big enough to circle in and weak.

It is evident that a variometer which is good enough to enable a pilot to make full use of small, weak thermals, will also be satisfactory in large and strong thermals, provided that it is capable of indicating high rates of climb and descent as well as small ones.

From the above it can be seen that although in very good soaring conditions almost any variometer is good enough, soaring in small areas of weak lift calls for a variometer with special qualities.

What are these special qualities and how can we define them? It is usual to specify the performance of an instrument like a variometer in terms of accuracy, sensitivity and speed of response. These three qualities are very different one from another, and must not be confused. They may be defined as follows:

**Accuracy**—is accuracy of indication of *steady* rates of climb or descent.

**Sensitivity**—a vario may be described as sensitive if its pointer makes a big movement when a small change is made from one *steady* vertical speed to another. Sensitivity has nothing to do with the speed with which the pointer moves.

**Speed of response**—if vertical speed is changed rapidly from one speed to another and the vario indicates the change of speed quickly it is said to have a high speed of response. A speed of response or response of one second would mean that during a change of vertical speed the indicated vertical speed would lag behind the real speed by about one second. (Apologies here to instrument experts for use of author's licence!)

A good vario must have good accuracy, particularly at around zero because of the need to deal with small areas of weak lift. Accuracy at higher vertical speeds is important because of the need to relate cruising speed to rate of descent for distance flying.

It must have adequate sensitivity so that it is easy to see a rate of climb or descent of 50 ft./min. in order to deal with weak lift, but the same instrument should also be able to indicate speeds up to 1,000 or even 2,000 ft./min.

A good vario should have the *right* speed of response. But what is the right speed of response? It is easy to see that a vario can be too slow—if it had a ten-second response one could fly right through a small area of useful lift without it being indicated. On the other hand, it is possible to make an electric variometer which is so fast that it can respond to sound waves, but such an instrument would be worse than useless because its pointer would be flashing up and down so fast that its movements would be quite meaningless to the pilot. How then can we determine the *right* speed of response?

It is fortunately possible to deduce the right speed response in the following way. If one considers progressively smaller and smaller areas of lift it is evident that as the diameter of the area of lift gets smaller the pilot must react

more quickly in order to manoeuvre further into the lift and to centre in it. The smaller the area of lift, the faster he must react to changes in vertical speed. Now, if we say that the smallest area of lift in which we are interested is one in which a pilot can just circle, we find that, for a flying speed of 45 m.p.h. and a complete 360° turn every eighteen seconds, the diameter of such an area would be about 400 ft. Since at 45 m.p.h. he would be able to fly right across the widest part of the area of lift in six seconds, we can see that the speed of response of the vario needs to be a lot faster than six seconds if the pilot is to detect the lift and start turning early enough to make use of it. In fact, the combined responses of vario, pilot *and* sailplane needs to be less than six seconds, since one must take account of the effect of the delay of the sailplane in responding to control movements.

We know that it takes about one second to react to an instrument like a variometer; it will take, say, three seconds more for a sailplane to significantly change its flight path after appropriate control movements, so that together the pilot and sailplane have about a four-second response. Clearly a variometer response of two seconds is too slow in these circumstances because it would add 50% on to the four-second pilot/sailplane response and would waste their capability. A vario response of one second or half a second adds only 25% or 12½% to the pilot/sailplane response and so would be more acceptable. In practice, a vario response of half a second is a bit too lively because the pointer is difficult to follow, so we are left with a vario response of about one second as the optimum between too slow for small areas of lift, and too fast for easy interpretation.

So we arrive at a specification for our ideal variometer, which should have *good* accuracy, particularly at and around zero; a sensitivity such that it will indicate 50 ft./min. clearly as well as vertical speeds up to 1,000 or 2,000 ft./min.; and a speed response of one second.

Generally speaking, mechanical variometers have been developed by much ingenuity, patience and skill until they have reasonably good accuracy and sensitivity. Unfortunately, however, it is not possible to make a mechanical variometer with a speed of response such as needed to deal effectively with small areas of lift.

Why is it not possible to design a mechanical variometer with a response as fast as one second? The reason is a very simple one. The indicating mechanism of a mechanical variometer is moved by the air flowing in and out of the air capacity as the atmospheric pressure changes with changing altitude. In some cases a spring force must be overcome. In order to move the mechanism and indicator of the variometer a definite amount of air must flow in or out of the capacity and a corresponding change of altitude is required to get the air to flow. A simple test shows that a change of altitude of several feet is required before a rate of climb of even 50 ft./min. is indicated by the best of mechanical variometers. A typical good vario requires a change of altitude of 8 feet in order to displace enough air from the capacity to indicate 50 ft./min. This means that after flying from "no

sink" into an area with 50 ft./min. lift, the sailplane would have to climb 8 feet, taking over eight seconds, before the vario indicated anything like the correct rate of climb! In other words, that particular mechanical vario, quite a good one, has an eight-second response for a change from zero to 50 ft./min. vertical speed. Definitely not good enough for soaring in small areas of lift.

It was the recognition of this fundamental obstacle, that the speed of response of a mechanical vario cannot be made fast enough to match the one-second response needed to deal with small areas of weak lift, that led to the design and development of the Cook Electric Vario.

**The Cook Electric Variometer**

In this instrument the air moving in and out of the capacity is not impeded in any way, nor does it have to move any mechanical parts. The movement of air to and from the capacity is detected by electrical means which are capable of very fast response. Because air can move quite freely in and out of the capacity as altitude changes, and because the movement of the air can be detected and measured very quickly, the instrument has a very fast response to changes in rate of climb or descent. In fact, its natural response is much too fast for sailplane use and is deliberately slowed to give the one-second ideal response referred to above.

**How it works**

Just as in a conventional variometer, air flows to and from an air container when altitude changes. As altitude increases, air flows out of the container and vice versa. This flow of air is passed through a detector unit which contains two detector elements. One detector element is affected by air flowing out of the air container during a climb, and the other is affected by air flowing into the container during a descent. The two detector elements form part of an electrical circuit which is arranged so that if altitude increases, the flow of air affects one element and causes the indicator to indicate a rate of climb, and if the altitude decreases, the other element is affected and causes the indicator to indicate a rate of descent.



Since the detector elements detect changes in air flow virtually instantaneously, and since the electrical circuit and indicator are also very fast, the variometer as a whole is very fast.

**Performance**

Response time is approximately one second, which is the ideal response. Sensitivity ranges are 0-1,000 ft./min. and 0-2,000 ft./min. selected in flight by a two-position switch.

A non-linear scale provides greater sensitivity at low rates of climb and descent, so that the indication is more compelling in marginal conditions when prompt action by the pilot is most important.

**Reliability**

It was decided at the outset that the instrument should be at least as reliable as mechanical varios and that it should need no adjustment either on the ground or in the air.

In the first experimental prototype electric varios it was easy to obtain more than adequate sensitivity and speed response but impossible to obtain

reliable accurate operation with varying temperatures. Since one of the main design requirements was that there should be no need for the pilot to make adjustments either on the ground or in the air, a great deal of time was spent in finding ways of improving the design so that once the variometer had been adjusted in the factory no further adjustment would ever be needed.

One of the biggest sources of drift errors was the amplifier. Eventually it was decided to eliminate the need for the amplifier and its troubles by using a larger capacity unit.

The remaining drift errors were: zero drift (indicating climb or descent when there was none, and requiring a zero correction adjustment) and sensitivity drift (more sensitivity sometimes than at other times). These drifts were due to the effect of temperature changes on the electrical components and were eventually overcome by adding special temperature compensators.

The result of using the large capacity and special temperature compensators is an instrument which maintains its accuracy from −15°C. to +45°C. indefinitely, and never needs adjustment. Also suitable Total Energy and Audio attachments can be fitted.

Sometimes people ask whether it is worth fitting such an expensive instrument in a glider with modest performance.

I think the answer to that question is that the performance of the glider is immaterial. If a pilot wants to soar in small areas of weak lift (and which glider pilot does not?), this instrument will improve his ability to do so, no matter which glider he flies.

# SAFETY PANEL CIRCULAR

**Cockpit Checks**

ALREADY this year there have been six known incidents in which gliders have taken off with their airbrakes unlocked. This trend is very worrying and indicates that for some reason or reasons, cockpit checks are not being done properly.

Everyone should be familiar with one kind of preflight check or another. The standard B.G.A. one is CB SIT CB (Controls, Ballast, Straps, Instruments, Trim, Canopy, Brakes), but there are others, such as SCUBCART, CISTRS, Can-I-Take-Her-Off-Safely, etc. All these mnemonic checks have one thing in common, they are arranged in a significant way to make them easy to remember. It is a fact that if checks are arranged in this sort of way, not only will they be less likely to be forgotten, but they will always be done in the same order. Thus minimising the risk that the odd item will be left out.

If these mnemonics are so good, why then do people still manage to get airborne with brakes unlocked? The answer is that there are two traps for the unwary. One is the case where an item in the check is left out because it is not convenient to do it at the time. The rest of the checks are then finished and the pilot psychologically switches off. Finally, all is ready and the aircraft takes off without the item being done.

The second reason is the fumble which invalidates the vital actions. A pilot is sitting in his cockpit with the checks all complete. The cable is hooked on and the launch is started. Someone notices another glider on the approach and shouts stop. Correctly, the pilot releases the cable and opens the brakes because

it is a windy day. The danger passes and the ground crew quickly hook on to avoid further delay. The glider then takes off with the brakes open. Faulty launch point discipline? Yes. Someone should have noticed. True. The fact remains that the pilot *had* done his checks and therefore was mentally inert to the situation. Of course he *should* have put the brakes in, but no one told him he had to do the checks again after a failed launch.

How are we to eliminate, or at least minimise accidents resulting from faulty cockpit procedures? There are three basic problems which instructors and solo pilots should appreciate, they are: Not doing checks in correct sequence or not doing them at all; leaving out an item which cannot be done at the time, finishing the rest then forgetting the said item; finally, doing the checks properly, but having some sort of fumble which makes it necessary to do the checks all over again.

My remarks are mainly directed at instructors, because it is from them that a pilot will develop his own approach to flying discipline. However, the solo pilot would do well to indulge in a little self-analysis to see if he has room for improvement.

**Not doing checks properly.** The remedy for this is quite straightforward. No one must be allowed to take off without doing the approved drill. Instructors must pick up anything done incorrectly or out of sequence. This particularly applies in the case of early solo pilots who must have their cockpit checks observed.

**Leaving out an item and forgetting it later.** There is no reason why some items shouldn't be left out, providing they are completed before the flight takes place. The way to achieve this is to recommence the check at the first item which has been left out, do it and then do again all the subsequent items. For example: a pupil is doing his checks in a two-seater. The instructor is standing by the nose prior to entering the cockpit. The pupil does the CBSITCB bit but cannot complete the Straps item. He does all the rest and when the instructor mounts, the pupil waits until he is strapped in, gets confirmation of this from the instructor and then *does all the following checks again.*

The reason for doing this is to make a mental issue of the fact that a check has not been completed. Using this method in airline flying has resulted in a decrease in the number of occasions when checks have been missed.

**Having the cockpit check invalidated by a fumble.** The answer to this is quite simple. If, subsequent to the completion of the check, the launch is held up, regardless of the actions taken *the complete cockpit check must be done again before take-off.* Vital action checks can only be of use if the aircraft takes off immediately after they are done. A large proportion of airbrake incidents occur after a launch fumble. The moral is clear.

Finally, instructors and solo pilots, have a critical look at your procedures. Vital action checks are just that. They are there for a purpose and have been evolved by a distillation over the years of a vast amount of flying experience. Use them properly and in the fullness of time you too can become a happily retired glider pilot.

ROGER A. NEAVES,
*Chairman, Safety Panel.*

# NATIONALS 1967

By ANN WELCH

LASHAM 1967 is certainly not going to be just the same champs. all over again. Cat's Cradle Distance, photographic turning points and possibly three HP-14's will change the face of the Nationals ten-days. Added to this there will be a further week of really high-powered contest flying for the 1968 British team contenders; so fingers crossed for good weather!

CAT'S CRADLE DISTANCE. This is a new task first thought of, but not yet tried, by Paul Bikle, and described to me by John Ryan at the last CVSM meeting. It was immediately obvious that it could provide some of the fun of distance flying without lengthy retrieves, and so we are giving it, I hope, its debut at the Nationals. Briefly, the pilot has to fly the maximum distance along a route of his own choice, making use of a number of turning points nominated at briefing by the task-setter. The pilot can choose which of the turning points he will use, and in which order, the only proviso being that he cannot fly an exact reverse of his previous leg. No prior declaration is required, and the distance credited is base, turning point, turning point, etc. landing point, provided that the landing point lies within the polygon formed by all the designated turning points. The base is considered as a turning point.

It is hoped that three HP-14's will be at Lasham. They will be flown by Peter Scott, John Williamson and, *hors concours*, by Schreder of the USA.

The HP-14 is an all-metal aircraft designed by Dick Schreder and flown by him last year in the USA Nationals which he won. It is a development of the HP-12 which Dick flew at South Cerney; the span has been increased to 54 feet, the fuselage is much lower and it is fitted with a retractable undercarriage.

PHOTOGRAHIC TURNING POINTS. This will be the first big competition in this country in which it will be used. To begin with, we will send out observers, but if the scheme works they will not be needed. However, if there are days of thick haze, then we may have to revert to observers again.



## MAN POWERED FLIGHT

HENRY KREMER has now offered £10,000 instead of £5,000 for the first manpowered flight on a figure-of-eight course round two turning-points at least half a mile apart, crossing the same line at the start and finish with a height of at least 10 feet. This competition will be open to pilots of any nationality, not only the Commonwealth, and will close after 31st December, 1973.

The original £5,000 will be divided into £2,500, £1,500 and £1,000 for the first three Commonwealth pilots to fly a simpler course: one flight of just over half a mile in each direction, interweaving about three points set a quarter of a mile apart in a straight line, i.e. two flights with intermediate landing.

R. Ae. S.

# SOARING DOWN UNDER

By L. S. POULTON

HAVING the chance to escape the English winter for three months to visit Australia and New Zealand, it was an easy decision to make gliding the central thread upon which to plan the holiday. As things turned out this proved in any case a very good way of seeing the country: not only was the soaring exceptional, but cross-country flights and retrieves took me to some unexpected places completely off the normal tourist routes. Above all I had the privilege of meeting a large number of very kind people who went out of their way to get their visitor into the air and to entertain him generously on the ground.

Fortunately I had a year to plan my visit and entered early into correspondence with the Gliding Federation of Australia and, through them, with the main clubs in New South Wales, Victoria and South Australia. Most helpful replies were received from all, and it became a question of selecting the most convenient site. Back numbers of *Australian Gliding* were read and re-read; aeronautical charts were obtained and comparisons made.

Although I am sure I would have had a good time at any club, my choice finally fell on the smallest of the six I had been in touch with: the Sunraysia Gliding Club at Mildura, Victoria. Reports indicated prodigious thermals here and the site was a long way inland so that cross-countries could range out in all directions. Controlled airspace did not present a problem and — very important — several members flew mid-week.

**AT MILDURA (Australia)**

Mildura is 360 miles north of Melbourne, 650 miles west of Sydney and 250 miles east of Adelaide. Driving up from Melbourne, each town I went through was more depressing than the last and I wondered what the end of the road would bring. I need not have worried: Mildura is a beautifully planned irrigation city on the River Murray, as green as any English garden. It is a fruit-growing centre (oranges and grapes) and with every amenity available.

I reported in to the Secretary, or to be exact, jointly to Brian and Joyce McLaren, who handle the job between them. I was at once told to give up any silly ideas about staying at motels and to move into their caravan for the duration of my stay. It was quite obvious that lots of other members were also keen to help. The President, Reg Hudson, decided he could leave his vines for a few days and we would take turns to go cross-country in the Ka-6. Jack Barraclough announced he would be out to drive the winch — and he has an uncanny knack of spotting a thermal from ground indications. He would fling gliders into thermals on nearly every launch. Harold Gerand, the Treasurer, was lenient concerning fees.

The McLaren household is totally geared to gliding and has become an unofficial clubroom. Members come and go at all hours of the day and night. If a member sits down at the McLaren kitchen table it simply indicates he requires feeding and Joyce reaches for the frying pan! On one occasion I found these generous people preparing sandwiches, coffee and other "goodies" and enquired if they were taking their children for a picnic. I was told simply that the forecast for the morning was good and whether I liked it or not a long cross-country was expected of me. They had fixed baby-sitters and were coming out on the retrieve in their own car.

There are about 40 members in this club and three aircraft: a Kookaburra two-seater, a Kingfisher intermediate

single and a Ka-6. A high-performance Boomerang is on order. Operations are from the club's own field three miles from Mildura City Airport, and launches are by self-laying winch; 1,500 ft. is generally obtained above the field.

The Australian summer sun generates meaty thermals whose height and strength bear a relationship to the ground temperature. If this is over 100°F, 12,000 ft. or more can be expected. During my stay it was comparatively cool with midday temperatures of 80-85° and the thermals worked to a 7,000 foot cloudbase as a general rule. Completely "blue" days were, however, frequent and gave excellent soaring.

Retrieving was in itself an enjoyable novelty and a good method of "tourism" for a holidaymaker. It was possible to travel for hours at a sustained 60 m.p.h. with a trailer, and the main hazard was kangaroos. These frequently come in to the edge of the road to feed where road drainage has produced more greenery, and they will bound out in front of vehicles.

Gold distance and Diamond goal were duly put in the bag, but this flight did involve some struggles below 1,000 ft. and took nearly seven hours. It was done as an out-and-return because the club regarded a "downwind-dash" for the 300 km. to be rather "non-U", although fair game for the 500. I had two unsuccessful attempts at this latter Diamond; the first of these ended near Broken Hill, on a deserted stretch of the Silver City Highway. After an hour an elderly sheep station owner drove up in his truck and said he had watched my landing through binoculars; he had promptly made a thermos of tea and prepared some "tucker", which was most welcome, and the wing of the Ka-6 became our tea table.

By this time Christmas was upon us and I had laid plans to try the famous New Zealand wave at Masterton. I soon found myself in a QANTAS Electra bound for Wellington.

### AT MASTERTON (N.Z.)

Masterton is 64 miles from Wellington in the North Island and is the home of the Wairarapa and Ruahine Aero Club, which comprises both power and gliding sections. To the west of the aerodrome and about ten miles from it are ranges of mountains which extend most

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of the length of both islands, and which generate powerful wave systems in their lee. Prevailing winds are westerly, and the peaks upwind of Masterton are just over 5,000 ft. The mean height of the ranges is, however, less in this region, though higher in the Southern Alps.

A very well equipped Skylark 4 is the favourite weapon for excursions into the wave, and all launching is by aerotow. The C.F.I. and Engineer is Ted Ashwell, who was at the Surrey Club at Redhill before moving to New Zealand, and he is always delighted to "pull out the stops" and get people into the air on every possible occasion.

There was no wave for the first few days of my visit, but one morning we awoke to see the cap cloud pouring down over the ranges, wisps of rotor forming, and some healthy lines of lenticular far aloft. All the hours spent around the fireside back in Cheshire months before absorbing Wallington's excellent book suddenly came to life: this was D-Day, the real thing, and it all looked just like one of his diagrams!

John Powell, an instructor at Masterton, was to do the tow, and the normal pattern of events is to cast off at about 5,000 ft. in the "föhn gap" between the cap cloud and the rotor. John briefed me to expect a very rough tow when we reached this area, and he was quite right! An 80-foot rope is used so that both tug and glider will, as far as possible, be in the same chunk of turbulent air, and there must be no loose cameras, microphones or oxygen masks to flail around the cockpit. Despite tight straps, I certainly hit the perspex a few times, but fortunately was too busy to look along the flexing wings of the Skylark, but 3½ "g" was recorded at this stage.

John turned parallel to the mountains in good but rough lift, and it was clearly time to part company. On pulling the release I tried to turn right as per the rules of play, but nature had other ideas: the Skylark dropped like a stone into a left turn. Antics of this sort have to be tolerated while you climb up in front of the rotor cloud. By careful positioning calmer spots of lift are located, and once 10,000 ft. is on the clock things generally even out considerably.

Now it is time to fit the oxygen mask, which has a built-in microphone, and to radio Masterton and any other gliders in the air to compare notes. Now that things are more peaceful and the glider in smooth lift of a good 500 feet per minute, one can start to enjoy the scenery until, in this case, I reached the level of the lenticular at 20,000 ft.

Instrument work is easy enough in the face of the lenticular if required, because by this time the lift is very smooth. The most startling thing was that the nice crisp white aerofoil cloud as seen from the ground became a rugged, ill-defined grey mass on closer acquaintance. It was composed of ice crystals which entered the ventilation slots to give a "Christmassy" effect in the cockpit, but ice accretion on the leading edges consisted only of a half-inch of rime. There is not (at this height and low temperature) enough moisture present to give the heavy build-up of "glaze" which one can get lower down in a large cumulus.

After some time at 20,000 ft. I seemed to be unsuccessful in getting higher; and also became too easily satisfied by this first hour and a half. It was difficult to position accurately because of bad visibility at this level, and I was feeling quite smug because other gliders were giving radio reports of less happy conditions and "best heights" of around 12,000 ft.

I radioed Masterton that I was coming home and promptly was told not to be a — — Australian idiot, in good round "Kiwi" terms. "Keep with it," said the well-wishers on the ground, "the wave will improve in the evening." I made a few more half-hearted attempts and then came home, thinking that at least someone else could probably grab a Gold, even if Diamonds were not in the sky that day.

As evening drew on, it was clear that the pundits knew their waves. John White, in a Ka-6, got to 34,000 ft. and was still in lift! (It might be argued that John is exceptional, of course. At 20 he is a veteran; at 19 he had all three Diamonds, having not bothered to apply for the lesser certificates!) However, after giving away such an opportunity I realised there was much more to learn and hoped I would get a (thoroughly undeserved) second chance.

A waveless week passed, and time was filled in usefully giving instruction

to an A.T.C. course in the Bocian and the Bergfalke which provided some thermal practice and one or two very billious pupils. A quick D.C.3 trip was also made to Blenheim in the South Island to visit the friendly and efficient little firm of Instrument Services Limited. My barograph had gone "off the top" in my first wave flight (although a second one of 10 km. range was fortunately on board the Skylark 4) and they re-adjusted it to give me a larger height range. What would serve at Long Mynd or Portmoak was clearly inadequate for Masterton. Recalibration was then carried out and back I went to North Island, ready for further battle.

Things looked just possible on my last available day. The wind was nearly in the right direction, but there were none of the "heavenly portents" of a mighty wave as there had been before. There was, it is true, some cap cloud on the ranges and a few anaemic wisps of rotor, but no lenticular. Various good friends were "conned" into putting the tips on the Skylark, charging the oxygen cylinders and getting out the tow plane.

After a smoothish tow to 6,500 ft. I climbed slowly to about 12,000 ft. and decided then to penetrate forward to where I thought the primary wave should be: the lack of a lenticular, and an oblique wind across the ranges, made this hard to judge. The first attempt was nearly disastrous — I escaped through awful sink back into the secondary wave at 4,500 ft. — thereby getting a clear but unwanted low point on the barograph!

Slow progress was made to 19,000 ft. and by then it was after 7 p.m. — clearly it was now a case of "pontoon or bust", and forward we sped at 80 knots to seek again the primary.

Quickly 5,000 ft. were lost in smooth and deadly sink. I was looking at the scenery in despondent fashion and had not felt a tremor of lift. Lesson: in high wave there often isn't a tremor of lift to be felt! Because, you see, when I next looked at the varios, all three had unobtrusively moved to "full climb". Carefully the spot was marked and the Skylark gained 10,000 ft. in ten minutes; this was the jackpot.

The tourist books will not tell you how beautiful New Zealand looks from 25,000 silent feet. The Tasman Sea, the Pacific and the Alps in South Island

could all be seen clearly through the gathering dusk and it was surprisingly warm in the cockpit as we had held a westerly heading into the setting sun.

The Skylark was still recording a climb of 800 feet per minute without very close guidance from me. Each tap on the altimeter showed three or four hundred more, but there were problems. It was now getting very dark below, and I knew my barograph would go off the top again at 26,000 ft. — even though it had been modified a few days earlier by Frank May at Blenheim. Imagine the frustration of losing a Diamond through going too high and not producing a complete trace!

Sadly I swung out of the wave, located the heaviest sink and opened the brakes. It took twenty minutes to get down, and a few seconds after feeling the skid hit the dust a small gang of members burst out of the now lighted club building. When they got closer it was clear they all had that look which indicates men who want filling up with beer — and I have never been so happy to provide it!

Many strange things happen in the New Zealand wave, as seen from a U.K.-conditioned outlook. It is not uncommon for people to get Diamond height before they have any legs of a Silver C. The extent of the mountain ranges are such that long cross-countries can be flown entirely in wave, and the lift is often so strong that a very fast cruising speed can be held. Recently a tug pilot did not see why the glider should have all the fun. After release, he decided to soar the Super Cub; he had oxygen on board and got to 30,000 ft.

The generosity of my new "Kiwi" friends was of the same high order as I had met with in Australia. Private owners and visiting clubs lent their gliders if it was easier than getting the Skylark out, and if the weather was poor, people offered their hospitality or organised other entertainments. In short, I was thoroughly spoiled, and am probably by now in need of some good brisk Long Mynd discipline!

Regretfully I walked up the gangway of the QANTAS monster at Wellington Airport to return to Sydney. The Electra cruised back at 20,000 ft., a "low level run", I liked to think, to keep below any gliders from Masterton!

**ENTRIES LEAGUE ONE (Correct as at 26th April)**

| *Contest No.* | *Sailplane* | *Service or Gliding Site normally used* |
|---|---|---|
| 1. P. A. Wills | Dart 17R | Lasham |
| 4. W. A. H. Kahn | Dart 17R | Lasham |
| 6. H. C. N. Goodhart | Dart 17 | R.N. |
| 10. P. M. Scott | HP-14 | Nympsfield |
| 15. C. W. Bentson | Ka-6E* | Dunstable Downs |
| 19. Anne Burns | SHK | Lasham |
| 20. D. D. Carrow | Dart 17R | Lasham |
| 25. A. W. Gough | SHK | R.A.F. |
| 27. N. W. Kearon | SHK | R.A.F. |
| 44. A. H. Warminger | Dart 17R | Swanton Morley |
| 53. A. D. Piggott | T-53 | Lasham |
| 58. E. G. Shephard | Dart 17 | Army |
| 68. M. Bird | Dart 17R | Dunstable Downs |
| 86. J. D. Spottiswood | Olympia 419 | Aden |
| 121. S. F. E. Wills | Dart 17R | Long Mynd |
| 125. C. Pennycuick | Ka-6CR* | Nympsfield |
| 140. C. C. Donald | Dart 17R | —— |
| 171. G. T. Collins | Dart 17R | Perranporth |
| 177. M. C. Fairman | Foka 4* | Dunstable Downs |
| 197. R. A. Neaves | Skylark 4 | Booker |
| 200. J. S. Fielden | Dart 15* | North Hill |
| 240. M. J. Smith | Skylark 4 | Husbands Bosworth |
| 261. M. P. Garrod | Dart 17 | Dunstable Downs |
| 265. R. A. E. Dunn | Ka-6E* | R.A.F. |
| 272. J. Cardiff | Dart 17R | Dunstable Downs |
| 336. A. J. Stone | SHK | Lasham |
| 345. P. Dawson | Ka-6CR* | R.A.F. Germany |
| 356. P. Hanneman | Ka-6CR* | Bicester |
| 366. H. R. Dimock | Dart 17R | Portsmouth R.N. |
| 367. G. E. Burton | Dart 17R | Lasham |
| 372. J. Delafield | Ka-6E* | R.A.F. |
| 390. B. Fitchett | Ka-6E* | Rearsby |
| 404. P. G. Burgess | Dart 15* | Lasham |
| 409. J. D. Jones | Dart 17R | Nympsfield |
| 432. D. S. Innes | SHK | R.A.F. |
| 454. A. J. Deane-Drummond | Ka-6E* | Army |
| 470. D. B. James | Dart 17R | Lasham |
| 515. J. S. Williamson | HP-14 | R.A.F. |
| 966. E. Jerzycki | Dart 17R | Lasham |
| E. J. Meddings | Olympia 419 | Singapore |
| I. W. Strachan | Ka-6CR* | R.A.F. |
| *Hors Concours* | | |
| 514. R. E. Schreder | HP-14 | U.S.A. |

* Asterisks indicate glider complies with Standard Class requirements.

# IONSHIPS, 1967

## 29th May

**ENTRIES LEAGUE TWO (Correct as at 26th April)**

| *Contest No.* | *Sailplane* | *H'cap %* | *Service or Gliding Site normally used* |
|---|---|---|---|
| 9. C. A. P. Ellis | Skylark 3 | 100 | Booker |
| 12. C. G. Dorman | Olympia 463* | 105 | Army |
| 37. J. B. Jefferson | Skylark 3B | 100 | Camphill |
| 41. R. Rutherford | Skylark 4 | 100 | Long Mynd |
| 42. D. A. Smith | Skylark 3B | 100 | Dunstable Downs |
| 52. L. S. Hood | Skylark 3F | 100 | Army |
| 57. K. R. Aldridge | St. Austria* | 100 | Nympsfield |
| 65. Rika Harwood | Skylark 3B | 100 | Lasham |
| 72. L. P. Goldney | Olympia 419 | 100 | Army |
| 75. D. H. G. Ince | Ka-6E* | 100 | Lasham |
| 87. F. D. Cretney | Olympia 419 | 100 | R.A.F. |
| 90. R. Jones | SHK | 95 | Nympsfield |
| 91. A. W. Doughty | Skylark 3F | 100 | Booker |
| 92. T. A. McMullin, G. W. Camp | Dart 17R | 95 | Dunstable Downs |
| 95. J. C. Riddell | Dart 17R | 95 | Sutton Bank |
| 101. P. J. Neilson | Skylark 3B | 100 | Radlett |
| 108. C. R. Simpson | Dart 17R | 95 | Rearsby |
| 111. M. P. Seth-Smith | Olympia 460* | 105 | Lasham |
| 147. A. D. Purnell, D. C. Kerridge | Skylark 3F | 100 | Lasham |
| 150. R. A. Foot | Skylark 3F | 100 | R.N. |
| 160. H. S. Mettam | Skylark 3F | 100 | Lasham |
| 173. D. M. R. Riddell | Foka 4* | 100 | Dunstable Downs |
| 176. V. C. Carr | Skylark 4 | 100 | Husbands Bosworth |
| 189. D. C. Snodgrass | Skylark 4 | 100 | Lasham |
| 190. F. W. L. Shepard | Skylark 3F | 100 | Army |
| 211. C. Wills | Ka-6CR* | 100 | Lasham |
| 257. R. A. Sandford | Dart 17R | 95 | Nympsfield |
| 317. G. S. Neumann | Skylark 3 | 100 | Cambridge |
| 328. D. S. Scallon | Skylark 4 | 100 | Lasham |
| 349. P. D. Lane | Dart 17R | 95 | R.A.F. |
| 350. J. G. Croshaw | Ka-6CR* | 100 | U.S.A. |
| 355. N. W. Smith | Ka-6CR* | 100 | R.A.F. Germany |
| 368. R. T. Willbie | Skylark 4 | 100 | Lasham |
| 415. V. Tull | Skylark 3F | 100 | Dunstable Downs |
| 427. S. J. Redman | SHK | 95 | Cambridge |
| 433. J. H. Wheeler | Ka-6E* | 100 | Army |
| 445. K. G. Wilkinson | Ka-6* | 100 | Booker |
| 451. E. Stark | Ka-6CR* | 100 | Army |
| 466. F. G. Irving | Dart 17R | 95 | Lasham |
| 481. C. M. Greaves | Dart 17R | 95 | R.A.F. |

*Asterisks indicate glider complies with Standard Class requirements.

| | | | |
|---|---|---|---|
| *Hors Concours* | | | |
| J. Everitt and others | Capstan | 115 | (National Coach) |

## KITTIWAKE NEWS

THE prototype Kittiwake is very nearly complete. Through the kind offices of Ken Wilkinson, B.E.A. Apprentices have been working on the final fitting-out during the winter. The future of the project is becoming more clear, and we find that Kittiwake is not just a single-seat glider tug, but a whole handful of aeroplanes!

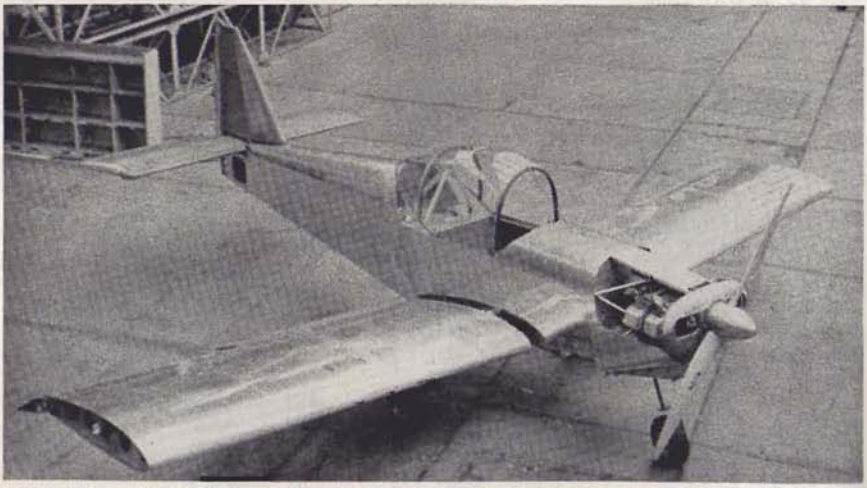
Kittiwake I is for economic glider towing, aerobatics and sport, and has possibilities as a minimum-cost small agricultural aeroplane using concentrated chemicals. But a major feature of the Kittiwake design is the fact that the landing gear is mounted on the fuselage and the wings bolt on each side. Thus not only can the machine be built or overhauled in a garage; it is also relatively easy to fit new wings without redesigning the fuselage centre section.

Or *vice versa*: the same wings can be used on a new side-by-side two-seater fuselage, and here we have Kittiwake II, whose tail, engine, undercarriage, etc., can all be the same as the single-seater. It could be a two-seat tow plane with a slightly larger engine, but this would put up the cost of towing in proportion. Kittiwake II has been designed to accept engines bigger than 100 h.p., up to about 150 h.p.

Now project thoughts go a stage further with a powered trainer derivative. The Mark II fuselage could be fitted with high aspect-ratio wings to produce a trainer on the Piggott plan, or a modified Kittiwake low aspect-ratio wing might be fitted, with air brakes and special arrangements for making the feel of the ailerons like that of a glider. Investigations into the latter idea are proceeding, and it's worth a thought that this aeroplane would take up much less hangar space!

It is hoped to have Kittiwake I at Lasham for the Nationals, where it will be working its heart out on the job for which it was originally intended—provided we can get the necessary development and paper work done in time.

ANN PROCTER.



*Progress at 1st January is shown in this photograph, and we hope that flights will have been carried out by the time this is published.*

*Stop Press.*—CLOSING DATE for entries in Airways (Wycombe) Regionals is now 9th June.

CANCELLED: Midland Regionals (3rd-11th June) will not now take place.

# LYNEHAM SPECIAL RULES ZONE

DESPITE a long and hard-fought battle with the Board of Trade, we have been unable to prevent the conversion of the Lyneham Control Zone into a Special Rules Zone. The Lyneham airspace thus becomes more heavily restricted than that round any airport in the U.S.A., Chicago (O'Hare), John F. Kennedy, etc., included. Having once got this control, the R.A.F. have agreed to a trial system to enable gliders to transit the area. The relevant information is set out below:

**Date.** From 4th May, 1967, the Lyneham Special Rules Zone (SRZ) and Special Rules Area will come into existence to replace the existing Control Zone.

**The SRZ.** The SRZ will consist of the airspace from ground level to 3,000 ft. a.m.s.l. enclosed by the following lines:

1. Straight lines parallel to and 8 n.m. on either side of the centre line of runway 07/25 (068°M).
2. Semi-circles of 8 n.m. radius centred on points on the extended centre line of runway 07/25 each 2 n.m. from its midpoint.
3. The portion north of Airway Green One is excluded.

**The Special Rules Area** has the same horizontal extent as the SRZ but extends from 3,000 ft. a.m.s.l. to FL65. In addition it has a stub extending eastward along Green One for 2 n.m. from FL40 to FL55.

**The Special Rules.** The special rules are as follows:

*In the Zone* no aircraft may enter without first establishing two-way R/T communication with Lyneham ATC on the notified frequency and complying with any instructions given regardless of weather conditions.

*In the Area* the same rule applies but only in IMC.

(The frequency selected (123.4 mcs.) for this purpose is not within the range of glider radio equipment.)

**Special trial arrangements for gliders.**

R.A.F. Transport Command recognise that gliders may not be able to observe the above rules and have therefore agreed to a trial of special arrangements for glider transits. These arrangements are:

1. Frequency 130.25 mcs. has been obtained from the Board of Trade for the trial. This frequency can be inserted in the third channel of the Pye Bantam.
2. Gliders who expect to transit the zone will call up Lyneham five miles before reaching the zone, giving an estimated time of entry.
3. This trial service will be available between 10.00-19.00 during the trial period, which is expected to last three months.
4. When entering the zone gliders will report height and whether climbing or descending (presumably descending). If at any time while in the zone the glider becomes established in a thermal, a further call must be made giving this information and height. On leaving the thermal a further call must be made giving height and heading. No call is necessary for minor climbs of the order of 100 or 200 feet.
5. In event of failure of radar, or other emergency, gliders may be instructed to leave the zone as quickly as possible.
6. Gliders will be required to set the Lyneham QFE on their altimeters before entering and while transitting the zone.
7. Gliders are advised to communicate also when transitting the Special Rules Area in VMC.

NOTES ON THE SYSTEM:

**Altimeter setting.** It will be necessary to have an altimeter in which the subscale works correctly. The **QFE** which will be given by Lyneham is the setting in millibars (you can request inches of mercury if your altimeter subscale is so graduated) which, when set on the subscale. causes the altimeter to read height above Lyneham aerodrome level.

For interest, the **QNH** is the subscale setting which causes the altimeter to read height above sea level.

Thus, if you set your altimeter to

zero before take-off you have set your *take-off airfield* QFE; if you set it to airfield height you have set it to the local QNH. The regional QNH (see below) is the lowest forecast QNH in the region for the next hour.

**Radio procedure.** The R/T procedure for a typical transit is described below:

"Lyneham Approach this is Glider No. 6 — over Membury — estimating enter your zone in ten minutes—over."

"Glider 6—Lyneham Approach—wait —over." (This means that your call is acknowledged by the R/T monitor assistant and the controller will talk to you shortly; meanwhile you press on.)

"Glider 6—Lyneham Approach—what is your present position, height, heading and flight conditions—over."

"Glider 6—three miles N.W. of Membury, height 3,200 ft., heading 310° IMC, request clearance to transit Zone/Area towards the North-West."

"Roger Glider 6—I have/have not radar contact—set Lyneham QFE 1008 millibars—report entering zone. Present traffic information is ——."

"Glider 6—Roger—QFE 1008—.

"Lyneham Approach this is Glider 6 —entering your zone three miles east of Wroughton—height 2,800 ft.—descending—over."

"Roger Glider 6—you are cleared to enter. Advise passing —— height. I have/have not radar contact."

"Lyneham Approach this is Glider 6 —now in thermal over Swindon—height 2,900 ft. climbing—over."

"Roger Glider 6—advise passing —— feet."

"Lyneham Approach this is Glider 6 —now heading N.W. at 3,200 ft. descending—over."

"Roger Glider 6—advise passing —— feet."

"Lyneham Approach this is Glider 6 —clearing your zone at this time—over."

"Roger Glider 6—Regional QNH is —— mbs/ins.—Good day—out."

At this point you reset your altimeter to whatever subscale setting you wish to use and press on.

NOTES:

1. For anyone who is not familiar with R/T procedure, it is essential that you practise with someone who is familiar before using 130.25. It is most important for the success of the trial that long-winded bumbling transmissions do not take place on this channel.
2. The use of 130.25 is to be confined strictly to the one purpose for which it has been authorised. It must not be fitted in car radios.
3. Gliders must listen out on 130.25 throughout the time spent in the zone. Pair flying is thus out while transitting.
4. R/T licences are not necessary for the trial but pilots are encouraged to obtain one. Depending on the results of the trial, they may or may not be demanded for permanent operation of the system.

H. C. N. GOODHART,
*Chairman, Airspace Committee.*

## AIR LEAGUE FOUNDERS' MEDAL

ON the 11th April Mrs. Burns was presented with the Founders' Medal of the Air League by Sir Archibald Hope, Bt., the Chairman, at a reception given in her honour.

Previous recipients of this Medal have been Tom Brooke-Smith, the R.A.F. Central Flying School, Dr. Barnes Wallis, Lord Douglas of Kirtleside and Sir Roy Dobson.

Anne thus has the added honour of being the first woman recipient; it was awarded for her consistent performance in the international gliding world—her main spare-time activity, additionally to her professional work as a Principal Scientific Officer at R.A.E. Farnborough.

Making light of her personal achievements Anne thanked the Air League for the honour which, she intimated, reflected the general high standard of the British gliding movement as a whole.

*Mrs. Anne Burns receiving the Founders' Medal of the Air League from Sir Archibald Hope, Bt., Chairman of the League. The presentation took place at the Royal Aeronautical Society's headquarters.*

# DRAG FOR THE LAYMAN — Part 2

By NICHOLAS GOODHART

PART 1 of this article in the last issue of SAILPLANE & GLIDING described the nature of the friction between airflow and the surface over which it flows. Unfortunately this is not the only drag force to which a glider is subject; there is a further drag force called "induced drag" which is inseparable from the production of lift. Since lift is essential for flight, induced drag is inevitable.

If the airflow past a wing is producing lift, then, in accordance with Newton's law about actions and reactions, the wing must produce a downward force on the air; thus air which arrives horizontally at a wing must leave it with a downward velocity in addition to its horizontal velocity. Fig. 1 shows airflow arriving and departing from a wing which is producing lift.

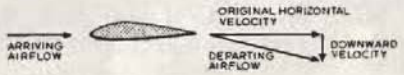



*Fig. 1*

The angle through which the airflow is turned is called the downwash angle — $\varepsilon$ in Fig. 1.

One is accustomed to thinking of the lift force on a wing as being at right angles to the direction of flight (i.e. the direction of the arriving airflow), but this is not strictly true. Since the lift force is being produced by deflecting the airflow, it is at right angles to the mean direction of the airflow, i.e. it slopes back by half the downwash angle.

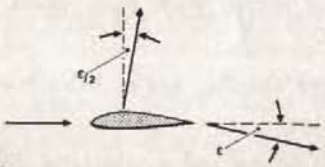



*Fig. 2*

This is shown in Fig. 2.

From Fig. 3 it is immediately clear that the force on a wing must have a backward component and this is known as the *induced drag*. We have ignored


*Fig. 3*

friction in this analysis altogether and this drag force has no connection whatever with the friction of the airflow; it derives solely from the fact that the wing is producing lift and it is always there, though it can be varied in size.

Imagine a glider in straight flight, i.e. requiring lift from its wing equal to its weight. This lift is produced by giving air a downward velocity, and the same lift can be produced by giving a little air a high downward velocity (cf. jet-lift), or a lot of air a small downward velocity (cf. helicopter). If we give air a high

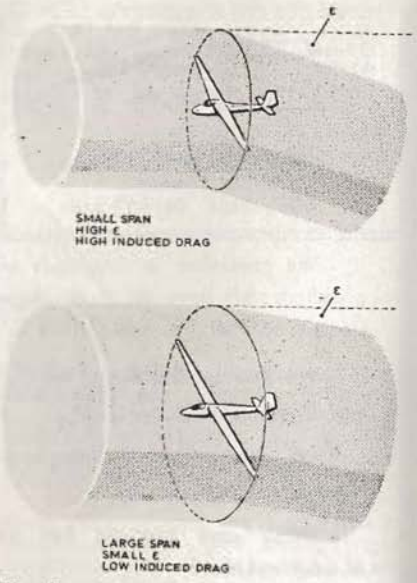



*Fig. 4*

downward velocity we will have a high induced drag, so clearly our aim must be to give the smallest possible downward velocity to the greatest possible amount of air.

While it is not strictly true, it is convenient to assume that the air given a downward velocity by the glider wing is a pipe of air with a diameter equal to the glider span. This is shown in Fig. 4. It is clear that the amount of air in the pipe being worked on by the glider wing is proportional to the cross-sectional area of the pipe, i.e. to the square of the wing span. Thus if two wings flying at the same speed are producing the same lift but one has twice the span of the other, the smaller one will have four times as much induced drag as the other. Span is a very valuable means of reducing drag — other things (such as weight) being equal.

The only other thing which affects induced drag for a given lift is variation of airspeed. The downward velocity imparted to the air increases as the airspeed is decreased; this is to be expected as the air takes longer to pass the wing and is therefore subject to the lift force reaction for longer. Thus the air leaving the wing has a higher downward velocity as well as a lower horizontal velocity, and the angle through which it is deflected consequently varies inversely as (velocity)$^2$.

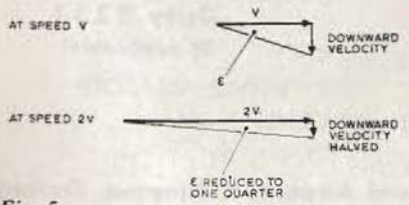



*Fig. 5*

This is shown in Fig. 5, which shows the triangle of velocities for the air leaving the wing of the same glider at a speed (V) and at twice that speed (2V). It can be seen that the downwash angle is only a quarter as much when speed is doubled.

Now consider the effect of doubling the weight of a glider at a fixed speed. The lift required is doubled so the air flowing past the wing is given twice as much downward velocity and hence the downwash angle is doubled also. This doubles the deflection of the resultant force on the wing, and as the force itself is twice as large, the induced drag will be four times as much.

Thus the diagram of forces before and after the weight is doubled will be as shown in Fig. 6. We have therefore concluded that induced drag varies as (lift)$^2$.

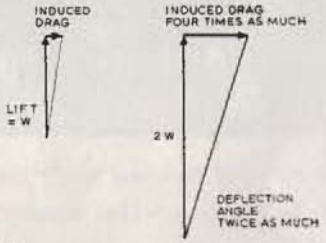



*Fig. 6*

Putting all this down mathematically we have:

$$\text{Induced drag (Di)} \frac{(\text{lift})^2}{(\text{span})^2 \times V^2}$$

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and, assuming the glider is in straight flight, we can substitute weight instead of lift. The normal symbol for span is b, so we get

$$Di \propto \frac{W^2}{b^2 \times V^2}$$

It can be quite easily shown that the complete equation is

$$Di = \frac{W^2}{\pi\, b^2 \times \frac{1}{2}\rho V^2}$$

where $\rho$ is the density of air (0·00238 slugs*/ft.$^3$ at sea level).

In order to get an idea of the size of the induced drag, it is worth working out a specific example. Assume a glider of span 18 metres (59 ft.) and weight 800 lbs. at a speed of 65 ft./sec. (38·4 knots). This gives

$$Di = \frac{800^2}{\pi \times 59^2 \times \frac{1}{2} \times 0{\cdot}00238 \times 65^2}$$

$= 11{\cdot}65$ lbs.

A drag of 11·65 lbs. at a forward speed of $\frac{11{\cdot}65 \times 65}{800}$ ft./sec. or approximately 1 ft./sec. This means that a glider with the above span and weight has a sinking speed due to induced drag alone of 1 ft./sec. and there is nothing whatever that can be done about it. To get the real sinking speed, the friction drag of the airflow over the whole surface of the glider must also be added but this of course can vary depending on the skill of the designer in choosing wing sections and fuselage shapes etc., and the degree to which these shapes are achieved in manufacture.

* *Don't worry about the slugs, they are only there to avoid having a g in the equation.*

# THE NELSON HUMMINGBIRD

By TED NELSON

IT has been over twenty years since I became seriously interested in creating an auxiliary powered glider.

Many auxiliary powered gliders have been created in both Europe and the United States by mounting a crude, misfit engine on to a not-too-clean glider. The results were not satisfactory because the power-on did not provide safe take-off and climb performance. The glider's flight performance was usually drastically reduced and unsatisfactory. In the creations where ample power was installed, the ship became more of an ultra-light aircraft instead of a glider.

But I was particularly impressed with the article in the December, 1966, S. & G. about the Scheibe SF-27 with the retractable power plant and propeller. There is no doubt that they are on the right approach. A truly practical powered sailplane must be able to take-off and climb safely to soaring conditions unassisted. It must also be able to taxi around the ground without additional help. Powered gliders can compete as gliders for records, badges and in local contests with other standard class ships without any handicaps. The F.A.A. recognizes the Auxiliary Powered Glider with the engine as "another means of launching the aircraft".

I have been flying gliders since 1925 and became serious about powered gliders in 1945. At this time I financed the development of the first powered glider to be Type Certificated in the States by the F.A.A. Unfortunately, this creation also turned out to be a cute, ultra-light aeroplane because of the high drag of the fixed engine and propeller when gliding. This aircraft, called the "Dragonfly", was abandoned the next year.

All this effort and money was not completely wasted, however, because it provided a tremendous amount of information about this type of glider; and, because of it, our F.A.A. recognized the need for providing a category in their regulations. To meet the F.A.A. certification requirements, Chapter 6 of their "Basic Glider Criteria Handbook" states, among other specifications, that "The requirements of this chapter are applicable to gliders with power for self-launching, based upon the premise that power is intended to be used to take-off, climb and intermittent use thereafter." The additional following conditions at the most critical loading shall be met:

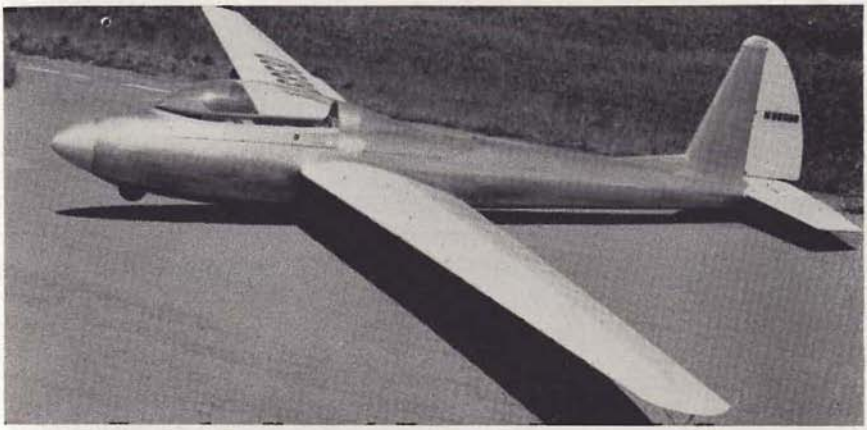
Power-off condition. It shall be demonstrated that the glider has a rate of sink not in excess of 5 ft./sec.

Power-on condition. It shall be demonstrated that the glider has, with take-off power at sea level, (1) a rate of climb not less than 200 ft./min.; and (2) an angle of climb of at least 1:17.

Fuel tank capacity shall not exceed 5 gallons.

Engine. Power plant requirements specify a block calibration test, detonation test, and a prescribed endurance test of 50 hours. The usual dual ignition system and auxillary carburettor heat are not required for glider use.

*The Nelson Model H-63 engine, side view*



*The Hummingbird as a sailplane with engine retracted.*

Several years after the Dragonfly project, Harry N. Perl, who was involved in its engineering and flight test programme, convinced me that he could design and engineer a practical sailplane with a retractable power plant. Harry, who is one of the old-time pioneers of gliding in America, was indeed able to create the first practical and successful two-place powered glider which is capable of competing with the best two-place gliders and standard class gliders flying.

Over a period of four years, we produced seven of these fine aircraft. One was made of wood and the other six of aluminium. These ships are flying in various areas of the States, with three in the San Francisco Bay area. Harry has the first ship we built and has flown it over 1,500 hours. My personal "Bird" has almost the same time in the air.

The Hummingbird, like all powered gliders, is more expensive than a conventional design; however, over a period of several years of flying, more soaring at lower cost per hour will be had in this design.

The Hummingbird will take off from any field large enough to accommodate any conventional glider behind a tow plane. The regular climb is 350 f.p.m., but by utilizing thermal lift with the power, it will easily outclimb the best tow plane and glider combinations. This also allows the pilot to select and try out a thermal before discontinuing his power. If satisfactory lift is not available, he continues along until one is found. Power also makes it possible to fly 20-40 miles from the normal operating base and take advantage of soaring conditions in that area. The cruising speed is 80 m.p.h., and enough fuel capacity is provided for approximately 45 minutes' use of the engine. Under average soaring conditions, the engine will be used for about 5 minutes on a soaring flight that may last from 4 to 6 hours. This low cost of operation is far less than any tow plane with pilot.

A special trailer for the ship allows the owner to make excursions to any location where soaring conditions are good. The ship can be assembled and ready for flight by three people in approximately 15 minutes.

The Nelson engine was designed and developed especially for the Hummingbird and is one of the major contributing factors in the long, continuous success of this aircraft. The engine is "Type Certificated" by the U.S. Government F.A.A. which guarantees that it has been subjected to all the rugged testing procedures required to produce a reliable and dependable power plant. Information about this engine and its availability is available from Nelson Aircraft Corporation. P.O. Box 551, Colonial Manor Road, Irwin, PA 15642, U.S.A.

**Specifications**

Wing span — 54 ft.
Length — 22 ft.
Wing area — 185 sq. ft.
Aspect ratio — 15.76
Empty weight — 810 lb.
Two-place tandem; all-metal; bicycle landing gear; steerable nose wheel; spoilers and dive brakes; retractable engine and propeller.
Engine: Nelson Model H-63, 48 h.p., 4,000 r.p.m.

**Performance Data**

Maximum dive speed — 120 m.p.h.
Cruising speed — 85 m.p.h.
Minimum sink — 3 f.p.s. at 45 m.p.h.
Glide ratio — 28:1.
Power rate of climb — 350 f.p.m.
Landing speed — 30 m.p.h.

* * *

*In response to our request for details of actual soaring flights made in the Hummingbird, Mr. Nelson sends the following further information:—*

The Hummingbird was flown in the 17th National Contest at Grand Prairie, Texas, 1950, and competed against the best gliders then flying. The ship was flown as two-place by pilots participating in their first contest with lots to learn. It was not dismantled during the entire meet; this is explained by the fact that, in the first three days of flying, the ship was landed in suitable spots where it could take off to fly back to Grand Prairie under its own power. Other contest flights were goal-and-return. It finished in 9th place against all ships and pilots entered.

*Engine fully retracted, ready to close the doors.*

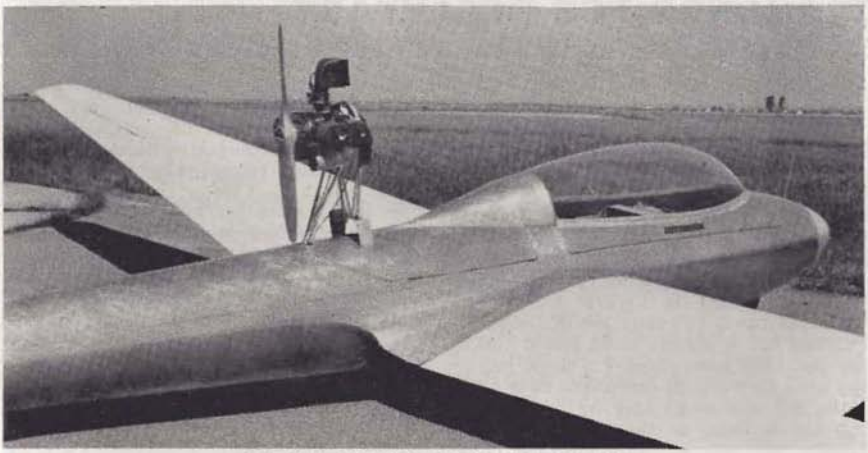
I attended and flew solo in the 1951 West Coast Contest at El Mirage, Calif., and finished 6th after only flying 3 days out of the 5. My longest flight was 155 miles.

In 1952 Harry Perl and I entered the National Contest at Grand Prairie, Texas, in the two-place category. Unfortunately we could only fly the first week. We did quite well, and on one flight we flew a new National Multi-Place Goal-and-Return record of 180 miles. I have not flown in any other contests, but enjoy my local soaring and taking my many friends for rides.

Les Arnold flew his Hummingbird solo in the 19th National Contest at Bishop, Calif., in 1958. He finished 10th and made the longest cross-country flight of the meet (345 miles).

My home and Hummingbird Haven Gliderport are located in a valley that is about 40 miles long. Wave conditions usually develop at one end or the other of the valley. Without any assistance, I am able to push my ship out of the hangar, take off, and then climb under power for ten to fifteen miles until I contact the wave at 3,000-7,000 ft. before stopping the engine. This may take 15-25 minutes, depending on the headwinds and turbulence. I am able to enjoy much more wave flights than the other gliders that operate from my field (18 ships), because I am able to explore the elusive wave until I am sure it is good, before discontinuing power. This is a great advantage and greatly adds to my pleasure. Our wave here is somewhat limited; however, I have made several 25,000 ft. flights and many to 20,000 ft. During the year 1965 I flew the Bird for 287 hours and used the engine 28 hrs. During 1966 I flew it 203 hours with 31 hours engine time.

There have been occasions when satisfactory lift gives up in the area I have been soaring, and I have found it very



*The Hummingbird ready for take-off.*

convenient to use the engine to move to another area 10 or 15 miles away. For a few minutes of engine time I can enjoy several more hours of pleasure without landing. On several occasions I have used the engine to return from a cross-country flight, instead of putting the ship on the trailer. Ordinarily my flying is done with the idea of being able to return to Hummingbird Haven after each flight.

# DIAMONDS FOR BREAKFAST

By PETE DAWSON

THE fourth annual wave soaring expedition organised by R.A.F. Germany Gliding Association was held again at Issoire from 1st January to 28th February. Issoire was chosen originally because it is one of the safest centres for landing outside the airfield, and is in easily navigable countryside.

The Centre is very ably run by Denise Trouillard, *Chef du Centre*. During the week she has a full-time job in Clermont Ferrand but is always to be found checking the Met. forecast at 7 o'clock before she goes to work. In the event of a good wave she will often stay on and fly the tug for as long as there are gliders to launch; she has an understanding boss! Her assistant is Robert Bossfuchair who, when he isn't tugging, is teaching powered flying in the Jodel or teaching gliding in a Bijave or sitting at the secretary's desk booking people in or working out flying fees. In fact, he does not stop from dawn till dusk, and the only complaint I ever heard from him was: "Peter, I am eggsausted!"

A number of R.A.F.G. gliders are positioned at Issoire for the period of the expedition; pilots of Silver C and upwards can take leave to spend a week or two there during this time. The bookings are arranged so that an instructor is present at all times during the expedition. We are then left to carry out our own check flights and briefings and to authorise our own flights. This is a very satisfactory situation.

Issoire is situated in the valley of the river Allier at a height of 1,270 ft., 20 miles south of Clermont Ferrand and 19 miles east of the mountain chain—the Auvergne Mountains, which are part of the Central Massif.

When a depression from the Atlantic reaches the Central Massif accompanied by winds of 220-310°, 25 kts., a wave system is established. Heights of up to 30,000 ft. have been achieved in the second wave of this system. The first wave is not normally used owing to its distance from the airfield and the large amount of cloud and precipitation over the mountains.

This year up to 28th February there were but four days on which a good wave was established — although good thermals were found on many days.

1st January: This is the only day of rest in the year for Issoire, and regardless of Met. conditions or the pleading wave-hungry French, English, Germans and Dutch, no flying is allowed. I do not blame Denise, knowing how some people celebrate the New Year!

26th January: Two Diamonds were gained this day by the Germans. Unfortunately there were no R.A.F.G. pilots there!

18th February: The forecast had shown promise the night before, and so hopeful faces appeared at windows, before light, peering up at the Le Broc hill looking for the tell-tale Föhn gap—and there it was! From then on, the bunkhouse became a hive of activity; hurried breakfasts, a wash if the pump worked—a wipe if it didn't! Hangar doors opened, aircraft D.I.'d, oxygen checked, aircraft out—all nationalities helping one another in the many chores attached to our sport. One soon learns at places like Issoire that all true gliding types are the same whatever their language.

We waited for about an hour for a weak occlusion to pass. This was supposed to arrive at 9 o'clock and it could have ruined the wave. It is always a problem for Denise and Robert when this Met. situation arises. If they allow gliders to climb high in wave before the front has passed, it is likely that the whole area would be covered by 8/8

cloud before the gliders could descend. So we waited, and at 9.28 I was launched into the most turbulent tow I have ever had! I thank the French for their long, thick rope. I was waved off, so I thought, still under the rotor with about 500 yds. to go to the wave. I learnt from Robert afterwards that it was turbulence which caused the tug to stand first on one tip and then on the other. Having released, I had now to move forward in air which was so rough that the A.S.I. was fluctuating from 30 to 80 kts. without any attitude change of the Ka-6. I spent half the time out of the seat! (I often wonder at the people I know who cry out that aerobatics are not good for high-performance aircraft, but who quite happily bring them to suffer this!) With surprisingly little height loss (the ups must equal the downs) I eventually reached that remarkably smooth air of the wave, and with a rate climb initially at 10 kts. went very quickly to 20,500 ft. The wind was strong enough to allow a climb heading straight into wind—a sensation at which I shall never cease to marvel.

I took a few photographs and then, with airbrakes out at 80 kts., descended quickly to get the next pilot (Chris Foot) airborne. During the descent a large amount of icing appeared inside the cockpit, but at no time did any appear on the canopy. This was due to the large de-misting hole in the front of the Ka-6 canopy. It is interesting to note that the French Javelots, which have sealed cockpits and oxygen mask outlet pipes connected to the outside, always iced-up as soon as they were above freezing level. I would rather have the icy blast in the cockpit and be able to see than spend the whole flight in comparative warmth but constantly trying to keep the canopy free of ice.

I landed at 10.35 and, after servicing the aircraft and another delay due to sudden, severe turbulence over the airfield, Chris became airborne at 11.36. His initial climb was at the same rate as mine but, owing to a higher tow, needed a greater maximum height for his Diamond. There followed an interesting conversation over the radio: "I am at 20,000 ft. in zero lift." Then, ten minutes later: "I am at 20,500 ft. in zero lift." Robert: "Ah, 'e 'as pulled back ze steek a leetle,

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per'aps?" Chris eventually found enough lift to gain his Diamond. Unfortunately, the wave started to deteriorate soon after he landed. This was due to a wind change, so there were no other climbs on this day. Altogether four Diamonds and three Golds were obtained from this wave.

21st February: This day really started at 4 o'clock on the 20th! That was when the best rotor I have ever seen appeared, too late to use. The forecast was such that it should still be there in the morning. A restless night's sleep followed and at 6 o'clock it was light enough to see that the magic "gap" was still there! Bob Kirkland was the first to fly this morning and was soon down grinning from ear to ear with the comment: "Cor! What a marvellous sight!"

Jim Morris was next, and now he has a tale to tell which will need the backing of this S. & G. because I am sure no one will believe him in a bar in the future. The story will go something like this: "I remember the day I got my Diamond height—I took off at 9.57 from this little airfield, Issoire, in France. I was released at 4,200 ft., climbed to 20,000 ft. and spent about an hour looking for the remaining 700 ft. I needed for my Diamond. However, my oxygen ran out and I had to come down. When I looked at my barographs, neither had worked, so, not to be disheartened, I had some dinner and tried again in the afternoon. This time Pete said: 'Try moving further down the wave,' so I did, and at 23,000 ft. I still had 8 kts. up, but I opened my airbrakes and came down to give someone else a go!"

Whilst all this was going on, the Swallow and Terry Slack slipped quietly (it carried no radio) to 22,170 ft. and back. This, I think, must be a height record for a Swallow. Later it was up again to 16,500 ft. with Ken Phipps for his Gold and yet again to 17,500 ft. with Alan Hartfield for his Gold.

The score for the day was 9 Diamonds and 5 Gold heights; a record for Issoire. Had Denise not landed out in the Storch —no petrol—even the best make mistakes (and the lucky ones get away with it), I think the score would have been more.

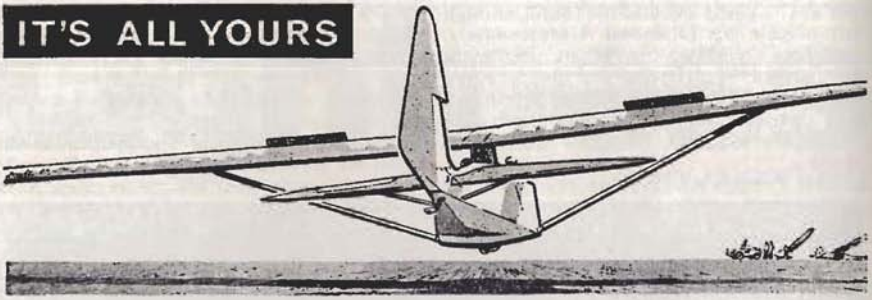
The French have a custom of sending anyone who lands out a postcard depicting a cow — la vache — only cows use fields! Denise bore the brunt of a great deal of leg-pulling in all the languages, but the chorus of "Moos" which went up when she arrived that evening needed no translation.

So ended the most successful expedition we have held; the last days brought only thermals, and not many who have experienced this sort of wave-flying are interested in thermal soaring for quite a while afterwards.

A total of 87 flights were carried out by 17 members of R.A.F.G. and Jim from Odiham. Total cost averaged at about 25s. per flight, flying our own aircraft. We in Germany are fortunate in that we have a comparatively short journey (550 miles) to Issoire, with no sea crossing, but I think even from England if one *intends to fly a great deal* it is worth taking one's own aircraft. Flying French aircraft is a very expensive sport.

I shall remember the flying; the friendly atmosphere; the days spent climbing mountains (small ones); Max, the fitter, whose voice was always the loudest when aircraft were being stacked in the hangar; Robert, who worked constantly getting people into the air until he was "eggsausted" but always had a joke ready; Denise, who loved the children and always managed to show the youngest her rabbits and shouted "Cannibale" at me when I suggested eating them tomorrow; the constant handshaking (and if you are a special friend, kisses on both cheeks morning and night); the water pump which finally gave up the ghost after sixteen years. Now they have mains water which was there all the time but no one thought of connecting it until the pump burnt out; the bunkhouse which smelt of diesel but cost only 1 franc (1s. 6d.) a night and gave heat, light, hot water and bed—you come to glide, so who wants a hotel anyway? The less you spend on accommodation the more to spend on flying! The radio shack with the excitement of listening to the progress of pilots in wave and a host of other "memories" which make me determined to return to Issoire, and I echo Rhoda Partridge but first change the name to Issoire, "I'm coming back".

# IT'S ALL YOURS



**Death by Committee**

TO start with, let me say that there are very good club committees, and that some committees are valuable. Let me also add that clubs with good committees flourish.

Some gliding club committees, however, have their darker side.

There are, especially, pitfalls for newer clubs, where, for example, an unfortunate pattern continues to be repeated. It works rather like this: a new club is started up by a group of enthusiasts, some experienced in gliding and some not. All goes well for probably the first year, by which time some of the originators have fallen out (some people just like starting things, but don't remain interested), and some of the newer people have gone solo.

These new solo pilots are naturally very interested in the club they have helped to develop, and having survived considerable frustration to become pilots in their own right, feel that they should have a say in its affairs. So they get on the committee, often as a group of new blood. Flexing their muscles they set about getting, quickly, as much flying as possible. Very laudable, until their increasing confidence, combined with lack of real experience, results in a confrontation with the C.F.I. If he is really experienced and rightly cautious, the new blood regard him as an old woman; if he is light on experience, they do not take all that notice of what he says, and operational procedures and regulations become lax. All is now set for the anarchy, known as gliding politics, which flourishes like a hot-house flower, particularly after a wet week-end.

Unfortunately, the very people who should stop the rot, members of the committee, are much too busy asserting themselves and promoting their individual ideas. Even more unfortunately, these ideas are usually combined with a lack of real experience in gliding operations—further mistakes are made and dissension created. Any experienced person in the club can barely make himself heard above the clamour.

But this example is not, of course, the only way in which committees can fail.

They fail if they lose touch with what is actually happening out on the field, the committee having become an end in itself; they fail because they try to do the job of the C.F.I., and so reduce his authority; but they mostly fail because they do not, separately or collectively, have the very great knowledge and experience necessary to run a flying organization efficiently and safely.

This is, of itself, not necessarily a criticism of the individual on the committee, who may well be aware of his shortcomings in this respect; but of the principle of a committee, which works by hearing views and collectively reaching a conclusion based on these views. If the information leading to the conclusion is inadequate, the conclusion is likely to be wrong. This is a big problem for a small club normally cut off from other gliding contacts; it has often no means of knowing whether its decisions are right or not; at best it has to find out by trial and error, at worst it becomes convinced that, because agreement was achieved in committee, the answer must be right. This is one of the penalties of

living in a committee-minded world, and has the added disadvantage that, once made, committee decisions are difficult to alter.

One reason for the weakness of some club committees is that the people on them have no fundamental stake, such as their livelihood, in the venture. Most have their own job, and gliding is their sport, so it is not always easy to regard the work done in committee on the basis of "If I don't get this right, I don't eat". Everyone may be doing his best, but the non-essential nature of the exercise may make committee activities somewhat unreal in terms of essential policy-making; sometimes the committee tends to become a debating society on matters of detail, or a trial of strength between individuals.

Big clubs are not without problems; when they become largely professional organizations, the committee in the accepted sense becomes increasingly anachronistic. There exists a holding company which has directors, which gives all its powers to the committee, who then employ a resident C.F.I. or a manager, who sits uneasily between the powerless directors responsible for the company, and the all-powerful committee whose members may only turn up at week-ends for their gliding, and are in any case subject to annual change with all the insecurity that this involves.

In such case it might be better if the pros. were subject only to the directors; since their livelihood is at stake they are concerned with making a go of the place, but if they fail then they are sacked. This is clear-cut, and the professional is able to get on with his job without also having to deal with the pulls of week-end controllers.

In voluntary clubs the good committee will confine itself to policy and procedure, and to supporting its elected officers such as the C.F.I., safety and technical officers, etc., and will resist the temptation to interfere with their authority.

If the position arises where a club officer, usually by reason of work, does not do his job as well as the committee, and probably he himself would like, too often the committee as a body will start taking his decisions for him, criticising and undermining his position, thus worsening the situation. The committee must realise that its first concern is to assist the elected officer. He has been given the responsibility, he is supposed to know what he is doing, but he almost certainly will need some help in any way, from typing to being reminded of deadlines.

The bad committee is not, of course, malicious, it neither intends to make anyone's job more difficult nor to take the wrong decisions. The trouble, frankly, is that it is not an unpleasant pastime discussing how to do someone else's job for them.

With regard to decisions, it is in fact more likely for the wrong one to be made collectively with support all around, than it is when the decision is taken by an individual conscious of his sole responsibility. This situation can possibly become acute when, for instance, there is a C.F.I. *and* a club flying commmittee.

I have been thinking about writing this article for some time, because I have seen clubs actually destroyed by their committees—situations where the ener-

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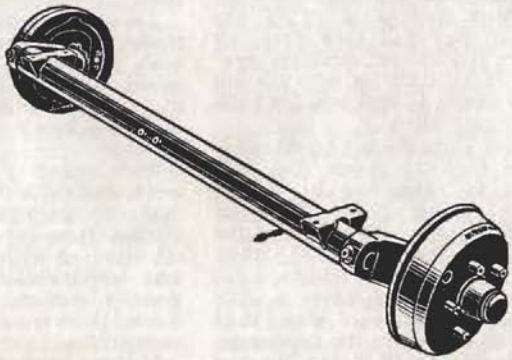

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gies of the club have been absorbed in a power struggle among committee members; situations where the committee has failed to check the activities of a plausible trouble-maker undermining club officers; and situations where the committee is too proud to go and find out. Nearly all the gliding mistakes have already been made somewhere, and in a new club the committee has a great deal more to learn than the ordinary member.

In many such cases the committee has lost sight of the primary purpose—to give club members the best possible flying. The committee is only of use when its members, acting as servants of the club, unselfishly dedicate themselves to this end—even if no one ever thanks them.

ANN WELCH

# A 731-km FAMILY AFFAIR

By ANATOL KOWAL

Translated and condensed from Skrzydlata Polska by Jan Minulski

THE summer was coming to an end, and it seemed that the sun was going to take leave from us for a while. However, in Central Russia hot weather still prevailed; puffs of convection cloud would burst into rapidly developing storm clouds of gigantic dimensions by noon, watering the fields in abundance.

During the evening of the 26th July last, a wall of leaden towering clouds appeared from the west, and throughout the night zigzags of lightning lit up the skies over the Orel.

Next morning we made an assault on the Met. Office where we were informed that the Orel was lying in a not very well defined ridge of high pressure. However, a secondary cold front was expected to pass through within the next 24 hours in the direction of Volga, so favourable conditions for a long-distance flight could possibly be expected.

Valery Zagajnow and his wife, Tamara, who both instruct at the Central Club, decided to make an attempt to break the goal record for single-seaters, and I intended to do the same in a two-seater.

After having obtained the necessary club approval, the official observers were informed of our intentions, and the date was set for the 29th July. The plot was to fly as near to the edge of the High which bordered a rather shallow depression with its centre over Dniepropietrovsk. Data gathered throughout that night were not very encouraging. Wind velocity at 1,500 metres 9-10 m/sec. and temperature gradient 0.8-0.85.

However, we did not hesitate for long and decided to have a go. The first small cumulus appeared at 9.30, and 40 minutes later I was airborne in the Blanik with a passenger aboard. Valery and Tamara followed soon after, each flying the well-known A-15.

Tamara's goal was the aerodrome near

Volgograd (previously known as Stalingrad), calculated as 731 kms. away, and I was dreaming of that place also. Valery had his goal fixed further away.

I decided to go it alone, as it would be difficult for a Blanik to keep up with the much faster A-15's. After having flown for 8 hours we unfortunately had to land. We had covered 570 km.—and nothing to show for it!

The family Zagajnov, however, concluded their flight in great style, with Tamara landing at her goal.

At the early stages of the flight, lift was around 1½-2 m/s., with cloudbase at 1,350 metres; the wind was no more than 18-20 km/h.

The secondary front had already passed the Volga and the wind behind it was decreasing rapidly. After 2½ hours flying, they flew over Jelec with its numerous "Grekovs" (Greek Orthodox Churches). Cloud development until then had still been between 500-1,500 metres. They now ran into a more difficult region, and both husband and wife became rather worried about the dissapating cloud over a rather large area, suppressing thermal activity, and they were glad to save themselves with ½ m. thermals, although even these were in short supply. At one stage it took them 45 minutes to cover 20 km. On the average, flying heights fluctuated between 900-1,300 metres, with a low at 750 and a high at 1,600 metres.

On occasions they were able to use cloud streets, although they were lying at an angle of 30°-50° to the direction of flight. During the best part of the day, between 13.00-16.00 hrs., they were able to put up their cruising speed considerably, as they could cover long stretches without the need to circle.

Cloud had diminished to 1/8 by the time they were on their last 200 km., and this changed to blue thermals only for the last hour of the flight. The wind had completely died down.

The final glide was started from 60 km. out, from 1,500 metres height, and they landed around 20.20 hrs. local time.

Valery, who landed before Tamara, was therefore able to be the first to congratulate his wife on her fine performance. He, unfortunately, landed 25 km. short of his goal.

With this flight, which is only about 25 km. shorter than one of the oldest established world distance records for women, set up by Olga Klepikowa in 1939, Tamara can claim the world's goal flight record for women, which has been held by Adela Dankowska of Poland since 1964.

Another kind of world record is that it is probably the first time that a husband and wife have made a cross-country of this length together in separate gliders.



## KRONFELD CLUB DIARY

**Diary of Lectures and Film Shows**
**Wednesdays at 8 p.m.**

May 31. Project Echo (USAF Film). Reports on Whitsun gliding.

June 7. Aviation Problems in Film Making. Group Capt. T. G. Mahaddie, R.A.F. (Rtd.). Advisor to the film industry.

„ 14. Feature film: "Wild Wings". Shot at Slimbridge.

" 21. Vertical/Short Take-off Aircraft talk with film. T. Brook-Smith.

" 28. Role of the Air League. Sir Archibald Hope. Previously cancelled.

July 5. The National Gliding Champion.

„ 12. Feature film: The Seven Seas of Antarctica.

" 19. Alpine Balloon Meet and Cross-Channel Flight. Wing/Cdr. G. Turnbull.

" 26. Training Experiences with a Powered Glider. Peter Jeffers and Peter Ross.

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## THE U.K's SECOND LARGEST STEEL CONSTRUCTION GROUP

# Not every day is a wave day... but!


THE regularity with which glider-filled trailers and crews from other clubs shuttle up and down the Great North Road is gratifying to the S.G.U. members who have created Portmoak.

In use now for 30 years to provide hill and wave soaring, Bishop and Benarty celebrate this birthday by having a portrait of their wave painted. It is now on tour with the Kronfeld Exhibition of Aviation Art.

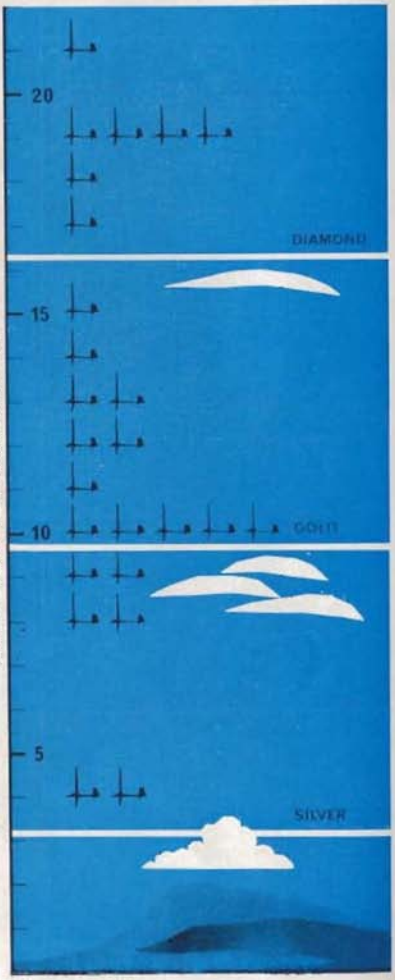
Scraping height at the bottom end of the climb, by having a winch launch to the hills, means that the barograph can start ticking up the gain from as low as 600 ft.—the level at which the hills start working. Of course aerotows do the same when the tug pilot is briefed to do a quick four-minute circuit and drop off the glider at the hill on his way round. Many consider this to be more reliable.

In the easiest conditions the glider man with time to spare can steadily ease himself to the highest point on the hill lift and then go off into the valley in search of the smooth "up" which indicates a lot more height to come, and so to a Gold, without using oxygen equipment.

The man in a hurry can have a tow to three or four thousand feet and be dropped smack in the middle of the best lift—but he needs to be oxygen-assisted to make the gain of height he wants.

The local lads enjoy wave flying so regularly that no sleep is lost if they miss wave when it is present: it can't stop happening. Waves have been streaking over these hills as long as geese have had wings—and how these birds enjoy it! The wave season, September to March, sees skies over the loch speckled with swaying lines of these beautiful flyers—and they have been using this air condition since long before the Roman Legion camped at the spring below Bishophill and named it "Well of Scotland".

Visitors, however, naturally endure the long trailer haul north—fully determined to extract the last inch of height from anything that blows upwards, and the organisation put into these Wave Expeditions can only be admired and applauded.




CLAIMS FOR HEIGHT GAINS AT PORTMOAK IN JANUARY, FEBRUARY AND MARCH

During the period 12th to 23rd March — Airways, Essex, London, Thames Valley and RAF GSA had well-primed groups in residence at Portmoak. Fully equipped, they tackled the job of wave-flying with a determination that made the easy-going local members blink!

The airline pilots displayed the traditional calm of the jet flight deck, and height gains came in as smoothly as the glide of an air hostess moving up the gangway to the succour of her passengers.

In that period of ten days, more than 250 hours were flown and approximately 200,000 ft. gain of height was recorded.

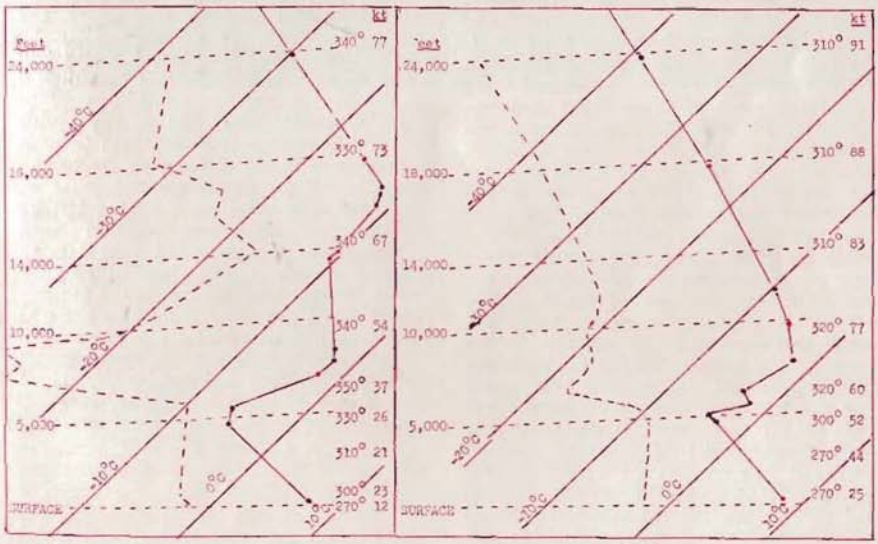
Portmoak Base ground station crackled away collecting "target reached" messages as the sailplanes landed, reloaded and floated upwards again with a new pilot hell-bent to outdo his rivals.

Charlie Barr in the Club hostelry broke some records too! Never has so much barrelled bitter passed through the pots in his care. It's dry when you're high! A shot of the local firewater helps to thaw out the frozen vocabulary to the point where the words "I didit—I didit!" become decipherable.

The lucky lads are off to a good start in collecting marks for the National Points Ladder. We hope it is not churlish to say, though, that we are pleased to claim that the best gain of height for that spell was by one of our own veterans—Charlie Ross, with 21,000 ft. gain.

All was not milk and honey. There were weeks when the most persistent gales for years kept gliders in the hangars—and pilots at the card tables. Some ventured to the near-by ski-slopes, others tried golf, tenpin bowling and sightseeing, but few, if any, failed to enjoy some interesting soaring between times.

In the 12 weeks—January to 23rd March—25 height claims were recorded. Of these there were 12 for Gold and 7 for Diamond legs.




MIKE GARROD *sends these tephigrams showing midday temperatures and winds at Shanwell, Fife, on the two notable wave days (see also next page). He writes that on Saturday, 18th March (left) the air was unstable to 5,000 ft. but predominantly stable from 5 000 to 17,000 ft.; winds increased steadily with height. On Sunday, above the same unstable layer was a stable layer to only 8,000 ft.; temperature at 20,000 ft. had dropped from −20° to −30°C.*

# TWTWTW — or That Was The Weekend That Was

By MIDLAND GLIDING CLUB

THE week-end of the 18th and 19th March gave us some of the most enjoyable wave flying that we have ever had at the Long Mynd. Almost everybody managed to get into the wave, and there were fourteen climbs to over 12,000 ft. a.s.l. (all heights quoted are above sea level), with a number of Diamond, Gold and Silver C height claims. This is a combined "How I Dun It", collecting together the experiences of the people who flew on these days.

The weather forecast for the week-end held promise of wave, with a strong north-westerly wind blowing over the Welsh Mountains just upwind of the Long Mynd. On Saturday, John Brenner, duty instructor and sufferer from "wave mania", had started muttering about wave several hours before breakfast, but the difficulty of unpacking the hangar with a 35-knot wind roaring over our exposed hilltop prevented us from starting flying until 11 a.m. Very frustrating.

The first gliders to be launched were a Capstan on a training flight and one of the club 463's. They quickly reached cloudbase at 2,500 ft. in strong turbulent lift, and after waiting for a few minutes for the wave to shift closer in to the hill, were out in the clear air in front of the stratus, and climbing fast.

The sudden disappearance of these two prompted frantic activity on the ground to get the rest of the fleet airborne. More gliders were rigged in the small sheltered area in the lee of the hangar, amid a confusion of trailers, eager pilots and roaring wind. By midday a dozen gliders were up in the hill lift trying to get into the wave. At this stage it was rather difficult to contact. Earlier it was possible to step from hill lift into "cloud suck" from the stratus, and then direct into the wave. As cloudbase lifted, this link between hill lift and wave was lost, and it was not until about 1 o'clock that thermals became strong enough to help the rest of the fleet into the wave. We find that, without aerotowing, the business of getting into waves is usually quite subtle, and often very frustrating.

In the meantime, John Brenner and Chris Dixon in the Capstan were at 10,000 ft., amusing themselves by looking down on the scurrying mass of Darts and 463's far below. Chris, the pupil, was enjoying his first wave flight and doing all the flying. Ron Miers, who had been in the wave with them earlier, had had to dive back to safety when his part of the wave clouded over, leaving the Capstan all on its own.

By early afternoon the sky looked quite magnificent, with 7/8 strato-cu, and a clear gap running westwards from the south end of the Mynd. In this gap pilots were now finding lift of up to ten knots. The leading edge of the cloud to the south of the gap was indented into great bays and promentories, constantly shifting and changing shape. This wave stayed there for the rest of the day, swallowing up gliders one after the other.

Ric Prestwich in his Dart 17R had had a fast climb to 11,600 ft. just to the west of the Mynd, and set off downwind to look for better things and to pay a visit to our neighbours at Nympsfield (why is it that they never manage to fly to the Mynd?). All he could see for most of the flight was 8/8 stratus below, but he did get two interesting position fixes. The first was a glimpse of a coal mine through a gap in the cloud, obviously South Wales, and the second a ship—the Bristol Channel! His best height was 15,000 ft. just downwind of Nympsfield.

Three other pilots also made cross-country trips, but unintentionally, since

*Looking northwest from 13,000 ft. above the Mynd. The lenticular is at 10,000 ft., 5,000 ft. above the tops of the strato-cu. Photo by Mike Randle.*

they were blown back in the very strong winds. However, Paul Hurwitz and Jim Maunton (who had chosen this day to pay the Mynd a visit from the nearby RAF GSA Wrekin Club) both reached Gold C height before landing just a few miles downwind. Dave Carson drifted back into the lee of the wave even though, at 9,400 ft., he was flying at 50 knots. Landing about 30 miles away at Tenbury Wells, he had to sit in the glider for the rest of the day wing-balancing in the strong wind.

Since most of the gliders had radio, news of what was going on was being relayed back to the ground, so that all pilots could be briefed where the wave was before take-off. As the afternoon wore on, we received reports of ever greater heights: Mike Randle in a Dart 15 reached 14,700 ft., Siegfrid Neumann, visiting us from Cambridge with a Skylark 3, went first to 16,000 ft. over the clubhouse, and then to 16,500 ft. 10 miles upwind in the next wave. Ron Rutherford finally went highest to 18,000 ft. All this radio chatter could be heard even as far away as Lasham, where they were grounded because of the strong winds. Poor things!

Ron had a very long struggle to get that last few thousand feet out of the wave to gain his Diamond, and spent the whole of the afternoon on oxygen. When he switched this on at 13,000 ft. he found the effects very marked; in particular, the urge to go down and get lunch and unfreeze his feet miraculously disappeared! He found that in the Skylark 4 the best way of climbing against the very strong headwind (65 knots) was to press forward to the front of the lift at 70 knots plus, and then pull off speed to about 50 knots. Sinking through the air rather more slowly, the Skylark would then climb as it drifted back through the wave, from where he could push forward again. The Dart owners found that they could still climb well at 75 knots, and did not have to resort to

such subterfuge.

The best heights were all reached at about 4.30 in the big wave just to the west of the site. At this time there were a few thin lenticulars at 10,000 ft., marking the strongest part of the waves. For the rest of the day the only clouds were the strato-cumulus lower down. Indeed, relatively few of our waves at the Mynd ever seem to be marked by lenticulars.

John Brenner had his second flight in the Capstan later in the afternoon, taking up a new member for his first air experience flight. He found 10-knot thermals below cloud, 4 knots in cloud and 6 to 8 knots further up in the wave. This was one of those rare occasions when it is possible to demonstrate the effect of controls and to let the pupil do his first flying at 10,000 ft., flying at 65 knots, and climbing at 4 knots! At 13,700 ft., still climbing, they broke off the climb due to lack of oxygen, and were back on the ground 45 minutes after take-off. The pupil found gliding interesting!

As cold and tired pilots landed for their tea, others took their place. Now it was not so easy to get up into the wave. There were no thermals left, the hill lift was rather weak due to the very oblique wind, and the wave had shifted to a more difficult position a mile to the north-west of the airfield. Just three more gliders contacted. Peter O'Donald in the Dart 15 went to Gold C height — alas; his barograph did not work! John Anstey reached 16,500 ft. and his barograph did work for a change (he has reached Gold height three times without a barograph). He had a fantastic rate of climb of 10½ knots at 9,500 ft. Once again John Brenner was up there in the Capstan, this time with oxygen, barograph and Mike Horan. They didn't use the oxygen—only one mask, so it would have been tricky—but did reach 13,400 ft.

Sunday was rather more difficult. The wind was stronger, and the wave was not working well lower down. John Brenner in the Capstan with a pupil, and Dave Carson in a Club 463, opened proceedings with pre-breakfast climbs to 5 and 6,000 ft. respectively. Kay Marsh took the 463 next to achieve a long-awaited Silver C height. At the same


*Instrument panel of Dart 15 climbing on Saturday, 18th March. Photo by Mike Randle.*

time, her husband Pete was at 5,000 ft. in another part of the wave with a pupil in the Capstan.

Tony Maitland in a Skylark 3, and Tim Corbett in a Dart 17R both broke through into the good part of the wave towards the end of the morning. At this time those on the ground were grappling with the winch and its jammed starter motor, unable to launch any gliders at the best time for them to get off and waving. Why does normally reliable equipment have to chose such moments to play up?

Tim made Gold C height, and Tony possibly a marginal Diamond, with a climb to 17,400 ft. back over Wenlock Edge. Tony Caveen in a Dart 15R was the only other pilot to contact. He did so fairly late in the afternoon; at 15,700 ft. he gave up due to lack of oxygen and frozen feet.

By Sunday night we had clocked up 2 Diamonds, 7 Golds and 2 Silver height claims. To crown it all, there was good wave for the whole of the following week, giving 2 more Golds and 1 Silver distance. As a result all our oxygen bottles are away being refilled, we have hundreds of ladder points and the bar is full of members shooting the most tremendous lines!

## HOW TO STOP WORRYING AND LOVE THE TREADMILL

By "8464"

THE bitterness and frustration experienced by most club pilots at all stages is one of the greatest drawbacks of our movement. Members leave us for other sports for the simple reason that they do not get enough flying. Here, therefore, are a few suggestions for the mythical "they" to do something about it.

It goes without saying that all launching equipment must be capable of doing its job even if money has to be spent on it. After all, it is possible to train a decent pilot on a T-31 if the winch is reliable, but a T-53, Capstan, Bocian and Blanik are useless if it is impossible to launch them consistently.

It is therefore up to club C.F.I.s and committees to decide just what facilities they are going to provide and how best to achieve this without making it prohibitively expensive. I do not think that the average club should provide facilities beyond Silver C, but it should be possible for members to get their Silver C's without too bitter a struggle. The aim, therefore, should be to produce a "Basic Silver C pilot" who then either goes into a syndicate or, if he cannot afford the money or time for this, can still have a few reasonable flights per year on club aircraft.

If one examines club fleets, one frequently finds a miscellaneous plethora of aircraft, the sole reason for purchase being "We needed another Two-seater, Secondary, High-performance, and that was all we could afford." I do know of clubs which have six aircraft of four different types and progress is impeded by C. of A's, prangs, and "There's not enough people to get that out, old chap; fly the two-seater." Progress from ab-initio to pundit is long and painful.

With the wide choice of two-seaters now available with performance and handling comparable with high-performance solo machines, it is now possible to go from ab-initio to Silver C on just two types of aircraft. If this was done, most of the frustration would vanish and members would have a far greater chance of flying on any day when conditions were suitable.

I have no connection with Slingsby Sailplanes, but the ideal set-up in my view would be two Capstans and as many Swallows as possible. The situation would then exist that, no matter what stage one was at, an aircraft would be available and in all probability more flying would be done by less aircraft.

One would have only four categories of club pilot: Dual, Solo, Local and Cross-country. Training would be simplified and the supervision of inexperienced pilots would be easier.

Obviously clubs cannot afford to have one aircraft reserved for the gilded few on the cross-country list but if this method is used it would not be necessary. One would simply organize a retrieve (I hope) and then insinuate oneself in the first available Swallow. The fury of a cross-country pilot in the local machine sharing a thermal with a local pilot in the cross-country machine must be in the megaton range. For myself I would rather have a reasonable chance of flying a medium machine than a faint chance of a better one. Egg and chips on the plate are far better than a photograph of a mixed grill.

The number of solo aircraft the club possesses is of course limited by money, but if one type only is used there is no possibility of bottlenecks due to prangs, C. of A's, etc. Also fund-raising for more aircraft would be much easier. A campaign to buy a Skylark for the dozen or so Silver C pilots in the club will be regarded with a very jaundiced eye by a member still on the two-seater but if the dance-raffle-bingo-sweep is to provide an aircraft he will be flying himself quite soon, his interest will be roused.

Two two-seaters are vital; 50% of the launches in any year are done by the two-seaters, and with only one, financial disaster is only one prang away.

The availability of the two-seater is the factor which controls the decisions here. Unlike the solo machines where one is striving to provide enough aircraft, here one can and must limit the number of members to a workable amount. This is probably the toughest decision of all, but it must be taken if the ab-initio side is to be anything like efficient.

If one assumes that the club is run entirely by members and operates by winch launches from a flat site the following assumptions can be made. The average two-seater launch will consist of (1) Briefing and cockpit check, 5 min. (2) Flying time, 5 min. (3) Retrieve, 5 min. Each launch will therefore take 15 minutes, so 4 launches per hour are the maximum possible.



At least one two-seater will always be available, so taking two months out for weather and averaging days at eight hours apiece, one two-seater will do, on weekends only, 4 x 8 x 2 x 4 x 10, which is 2,560 launches a year. The second two-seater will increase this figure by about 50% so 3,845 launches will be done.

About 20% of these launches will be required for other purposes, i.e. passengers, post solo flying, courses, etc., so 2,048 launches are left for the ab-initio's. It takes on an average 70 launches to get to solo stage, so the club can take 29 new members a year, plus of course those who leave for other reasons. The habit of some club committees of accepting anyone who comes along with the entrance fee and a year's subscription clutched in his hot little hand cannot be too strongly deplored.

The total number of members it is possible to have on the two-seater at any one time gives rise to more speculation. It appears that at weekends only clubs' members fly on either Saturday or Sunday so on the basis given above, about 17 members can be ab-initio at any one time.

I quite realise that this article consists of blind guesses, assumptions based on very ropy premises and a few prejudices of my own, but before loading your pens to reply have a look round and see (a) How many of your members went from ab-initio to Silver C entirely on club aircraft at weekends; (b) How many ab-initio launches you do for each solo; (c) Gasp, and say "That can't be right".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# FLYING TALK

**Competitions in 1968**

THE announcement about Class Competitions has been made now so that pilots who are thinking of buying a new glider will have as much warning as possible of the changes. (See page 245.)

A number of decisions concerning the *details* of the new structure have deliberately been left until later in the year so that more opinions from competition pilots can be obtained — particularly at the Nationals and at the Regional Championships. If you have strong views about the eight outstanding points, please make sure a Flying Committee member gets to know about them during the summer.

**Why have these changes been made?**

There are two main reasons: (a) FAIRNESS. The difference in performance between gliders now in current use is such that a satisfactory and fair comparison of pilot skill is becoming increasingly difficult. If we wish to compare pilot-effectiveness in competitions then we must make distinctions between gliders by separating them into different classes because handicapping, when applied over a wide range of machines, does not work satisfactorily. (b) CONGESTION. The present competition system is divided into three levels (League 1, League 2 and Regionals) and this has made it very difficult to obtain satisfactory promotion/demotion through the various levels — hence all the arguments over rating systems. The rather unusual shape of our present competition "pyramid" contributes to this problem — the relative sizes of levels being 1:1:5 rather than the 1:2:4 that might be expected. This congestion will become more serious as the number of competition pilots continues to grow. A Class system is better able to cope with this problem.

**Why has the ceiling of the Sport Class been put at the 100% level?**

Because if you look at the Handicap List you will see that *at the present* time it is the most convenient place to separate the "exotics" from the "club" machines. The position of the ceiling will no doubt move up in future years as older machines drop out of the competition scene and more high performance gliders are introduced. Broadly speaking the Sport Class will consist of Standard Class machines, Skylarks and older, non-Standard Class gliders. The Open Class will consist of Dart 17's, SHK's and the new higher performance machines, plus any Sport Class pilots who want to try their luck against the "exotics".

**What about one-design contests?**

They are certainly going to have their place in the new structure. Provided that there are sufficient machines of one type and that there are enough pilots owning them interested in competition flying, one-design contests can be run — at the 'Regional' level to start with. This type of competition does, of course, provide the best conditions for measuring pilot-effectiveness (the "in" word in gliding circles this year!). Which brings us to . . .

**Should the Open Class be handicapped?**

So far pilots we have canvassed for an opinion on this subject are divided about 50/50. When making up your mind it helps to decide just what you want to do in this Class. Are you *solely* interes-

ted in measuring pilot-effectiveness or do you want to determine the best pilot/glider combination (as is done in the Open Class in World Championships)? If the former, then you will probably support handicapping — recognizing that the best handicapping system so far devised will only take you some way towards your goal. But you may think some way is better than no way at all. The main disadvantage of handicapping is that it is thought to inhibit advanced glider design.

One possible solution to the problem is to have it both ways — two Champions and two results sheets for the same competition: one with handicapping applied and the other without handicapping. Will this compromise be acceptable to both parties? We shall no doubt find out very quickly!

**Shall I be able to change from one Class to another?**

The answer is "yes", but we can't tell you just how this will work yet. Smoke has been seen rising from the frantic sliding of the gliding statisticians' slide rules and we hope they will solve this particular problem quite soon.

**Are gliding competitions going to be as much fun as they have been in the past?**

The contest structure itself will, we are sure, create less frustration than the present one. The "fun" part depends very much on local organizers and in the end, of course, on the competitors themselves.

* * *

## SELECTING THE BRITISH TEAM TO FLY IN POLAND

Opinions always have differed, and no doubt always will differ, about the best way to select the four pilots who represent Britain in World Championships. There are three main alternatives:

**1. "The Three (or more) Wise Men" Method.** The wisest pundits the B.G.A. can find are appointed selectors. They make up their own minds, white smoke eventually emerges from the chimney at Artillery Mansions and the Team is duly announced. The trouble with this system is (a) it is very difficult for Council to decide who the Wise Men should be, and (b) whoever the selectors choose—and whatever the result of the Championships—at least half the readers of *S. & G.* will be convinced they could have chosen a better team!

**2. "The Computer" Method.** In this case you don't need selectors because no judgement is required. At its simplest, you take the results of League 1 in 1967 and the first four pilots form the team, the fifth pilot is 1st Reserve, and that's that . . . except, of course, the type of glider being flown may count for a lot, the 1967 Nationals may only consist of three contest days (heaven forbid!) or perhaps an obvious "possible" for the team went down with 'flu in the last week of May—there are more obvious snags. So the adherents of this scheme come up with a more sophisticated version. Let's include all the Nationals results for the last *two* (or three, or four) years in the reckoning, and apply a handicapping factor to cope with the different types of glider, then weight the scores so that recent results count more than old ones, they say. If you are able to book your time on the computer to cope with the complications, there still remains the doubt—aren't there other criteria that ought to be taken into account? So we come to the third alternative, which is:

**3. "The Democratic" Method.** This was used by the B.G.A. in 1964 and is being used again this year (with minor variations) to choose the team that will fly at Leszno during June, 1968. This is how it works.

The Selection Panel consists of:

(a) The first 15 pilots on the Rating List as at 1st January, 1967.

(b) Any pilot not included in (a) who finishes in the top 15 places overall in League 1 of the 1967 National Championships (provided the meeting is declared to be a Championship under Scoring Regulations S.2).

(c) Any pilot not included in (a) or (b) who was in the 1965 British Team.

(d) If the majority of the pilots listed above decide that a pilot who is not

listed should also be considered, this pilot will also be eligible for selection and will also have a vote.

A questionnaire is sent to each member of the Panel so that everyone's achievements can be tabulated and circulated to all the other members of the Panel.

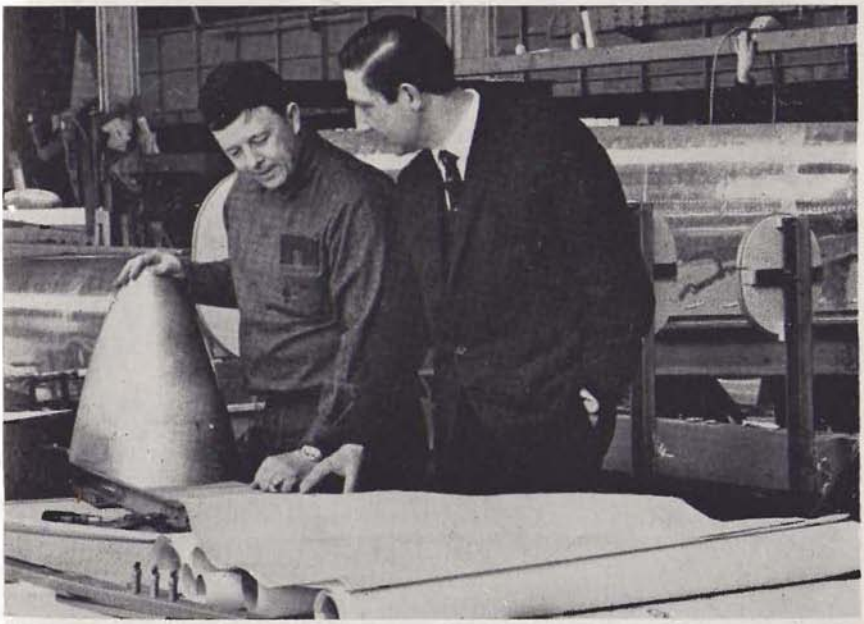
The Panel has a PRELIMINARY MEETING at which they discuss the considerations *they* think should apply in selecting the Team. The Panel choose, by secret ballot, twelve of their number to fly in a "one-design" (Dart) Possibles Contest, to be held immediately after the Nationals. A pilot is not excluded from final selection because he does not take part in this additional contest.

The Possibles Contest is followed by the FINAL SELECTION MEETING, where the entire Panel (not just the Possibles) vote for their first eight choices in order of preference. The votes are converted into points and the British Team consists of the four pilots who obtain the least number of points. The Reserves (in order) are the pilots receiving the next least number of points. The Team members then decide who they would like to invite to accompany them as Team Manager.

The B.G.A.'s method does, therefore, put the onus of team selection on the country's best competition pilots. It is they who decide whether the current National Champion should be included or whether a promising young pilot should be given his chance, etc.

Club representatives on Council believe this is the most satisfactory solution to a rather difficult problem. One thing is certain—about half the pilots in Britain will *still* think they could have made a better choice!

ROGER BARRETT,
*Chairman, Flying Committee*



*Dick Schreder (left), in the Slingsby factory, is shown sections of his own design, the HP-14. Two of these "ships" are being built by Bill Slater, the Manager (right), and one by Ken Fripp, all for entry in the British Nationals; Dick will fly one.*

# 300-km TRIANGLE RECORD IN BJ-3

By PAT BEATTY

TED PEARSON picked the triangle: Kimberley, Hopetown, Kalkfontein Dam, and it was well chosen, because there was a 10-kt. wind and this triangle gave a long second leg which was pretty much down wind, and a fairly short final leg into wind.

We started over the line together, Ted flying his beautifully-kept Austria SH1, but as I probably had an extra 30 kt. or thereabouts (I was indicating 140 kt.), I fairly quickly went ahead and gained about 300 ft. over Ted on the pull up to cruising speed.

Luck was with us at this point, and we ran straight into good lift which when centred gave a steady 4-metre variometer reading, and in fact averaged 742 ft. per minute. I flew this climb with great care and concentration, and was able to keep my height advantage all the way to cloud base (15,000 a.s.l., 11,000 ft. above ground). This gave me a big kick, because Ted really knows his bird and is in practice and he had been consistently outclimbing me. He flies his Austria at an all-up weight of about 800 lbs., while the BJ-3 weighed in this day at 1,150 lbs. This meant that I had picked up potential energy at 1.4 times the rate at which Ted had. These big Fowler-type flaps really do work.

For 3 metre achieved climb, I should fly the BJ-3 at 110 kt. indicated. However, there are a number of good reasons for sticking to lower inter-thermal speeds:—

1. It enables one to stay in the high (thin) air longer.
2. One has a better glide angle and so has a better chance of intercepting strong lift.
3. One spends more time gliding, and less climbing, which gives one more time to assess the condition, plan the flight, navigate, etc.
4. One has to find and centre fewer thermals.

Anyway, an analysis of some previous attempts at Kimberley seemed to indicate that I would do better to fly below theoretical best inter-thermal speeds, at least until I know the BJ-3 better.



I think most pilots would agree that 100 hours are necessary before one knows a new machine, and in the case of the BJ-3 this could safely be doubled. (I have about 60 hours.) This is not because it is a difficult machine to fly, but rather because it is more difficult to get the best out of the machine because of the variable geometry. The transition from the clean to climbing configuration (normally 20 degrees of flap) presents some difficulty. First, the inter-thermal speeds are very high (clean wing-loading is 8 lbs. per sq. ft., and the section NACA 66,212 has a low drag bucket extending from 70 knots upwards), so that the best L/D occurs at just over 70 kt., but to be sure of flying in the bucket, I use 75 kt. as a minimum cruising speed, 80 kt. if the air is rough, so the normal inter-thermal speed is 80 to 120 kt. indicated which often means 100 to 150 kt. true at the sort of heights one averages at Kimberley.

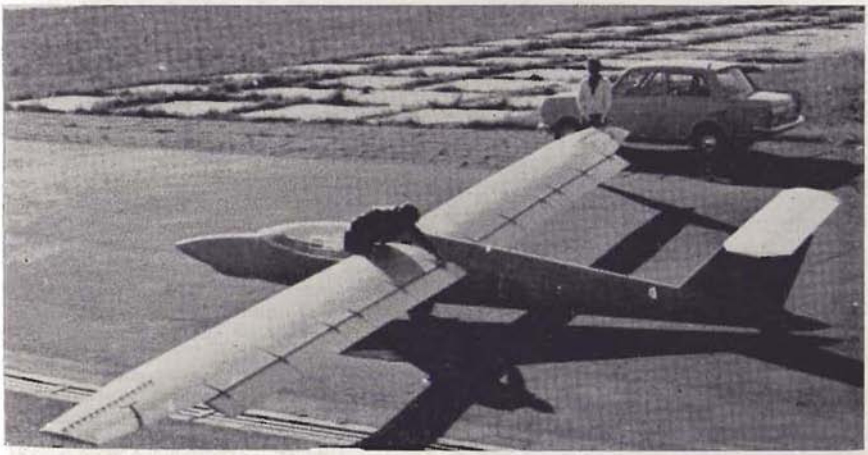
Apart from the difficulty of intercepting thermals at these speeds, the transition from flying clean to flapped takes some physical effort (6 strokes of a lever on BJ-3), and this is inclined to upset one's flying just at a time when it needs to be extremely accurate. (The flaps have a total area of some 40 sq. ft., and move 12 inches aft and about 2 inches down.) It would be nice to have electric operation, but no doubt someone would shout "Not fair". The transition also seems to upset the variometer reading, and there is an appreciable attitude change and a small trim change.

All too often I have hit good lift, hauled back to convert speed to height, started turning and put flaps out, only to find the variometer sinking back to zero. One is then really caught with one's flaps down, no idea where the lift is, and an immediate decision has to be made to search with flaps out (which can be costly), or clean the machine up, accelerate to 80 kt. and then have the interception problem again.

There can be no doubt that finding and centering lift with the variable geometry sailplane is more difficult than with a conventional sailplane; at the same time this is a new skill which gives one great pleasure when it is perfectly executed. Once the lift is centred, the very high lift co-efficients developed by the Fowler-type flaps enable one to fly extremely slowly. The stalling speed on BJ-3, 20 degrees flap, is 33 kt. and small rough thermals can be flown at about 45 kt. Under the same conditions Ted flies his Austria at 100 km/h. about 54 kt.

All these considerations had made me decide to fly slower inter-thermal speeds on this particular occasion, so I set off from the top of this first climb at about 90 kt. indicated, varying from about 75 kt. in up, to 120 kt. in downs. Flying like this, the BJ-3 is phenomenal, and I reeled off about 45 miles for a loss of only 5,000 ft. I saw Ted at this stage and judged him to be about 3,000 ft. below and a couple of miles behind, probably about 6 minutes in actual time.

The first turn point was rounded 45 minutes after the start (making allowance for height at 500 ft. p.m.), and the second leg looked terrific. There appeared to be a cloud street dead on track, but in actual fact, by looking at the shadows I could see that these were separate clouds but very nicely lined up. Here I was able to climb at an indicated 4 metres again, but broke off the climb about 1,000 ft. short of base, to be able to see the clouds better. I really enjoyed this part of the flight, anticipating the ups and downs rather than reading them on the variometer, and in this way covered almost half the leg for a loss of only about 1,500 ft. This was, of course, too good to continue indefinitely, and the end of this line of clouds suddenly left me with no obvious source of lift to make for. There were clouds on each side of track, but to chase them would have meant big diversions. Far ahead and just in front of the second turning point was a good-looking young cloud, but the 25 to 30 miles separating me from this looked pretty ominous; at the time there was about $\frac{3}{8}$th cloud cover, and under these conditions a hole is usually full of downs. This certainly proved to be the case, and although I was flying down



*The BJ-3*

wind and increased the speed. I still lost over 6,000 ft. before the reaching the cloud, so that I arrived only 3,000 ft. above the ground. I knew there must be strong lift about somewhere, but had to make a wide search to find it. The barograph shows a 4-minute search for lift here, but it seemed a lot longer at the time. When I did find it, it was not as strong as I had hoped (it averaged 565 ft. p.m. for 8,200 ft. and petered out 10,000 ft. above the ground).

By this time I had drifted to within a mile or so of the turning point, and getting there and taking pictures used 1,000 ft., so that I started home with 9,000 ft. in hand with 65 miles to go in a 10-kt. wind. I reckoned I should try to pick up 3,000 ft. in strong lift, and to this end made a climb at about 45 miles out, but broke it off at 8,500 ft. above ground as the lift was not strong and I hoped to find better.

Feeling that perhaps I would not find any more strong lift, and that I could probably make the airfield anyway with this height, I set off at 80 kt., which I figured would be best glide angle in the 10-kt. wind. Twenty miles out, I had 4,000 ft. left, which should be quite sufficient in the BJ-3 but looks terrible and leaves little margin for downs. By this time I knew the record would be nicely in the bag if I could come straight in, so concentrated on keeping the ball centred and the machine pointing straight at the Control Tower. I called Base on the radio, and asked them to get ready to take my time if I managed to make it. Partly to relieve tension, I started counting off the height at 500 ft. intervals, which seemed to be occuring at a very rapid rate. The air was rough, but seemed to have no large areas of up or down that I could use. For about 30 seconds I thought I would definitely not make it, and picked out what appeared to be a reasonable piece of ground on the edge of a pan, on which some sort of a landing could have been made; then I felt I should at least be able to get over the aerodrome fence and land on the taxi track which goes right past the Control Tower. I was most relieved to see there were no aircraft on the apron, and tried to remember whether the Sporting Code says one must fly over the starting point or whether one can taxi

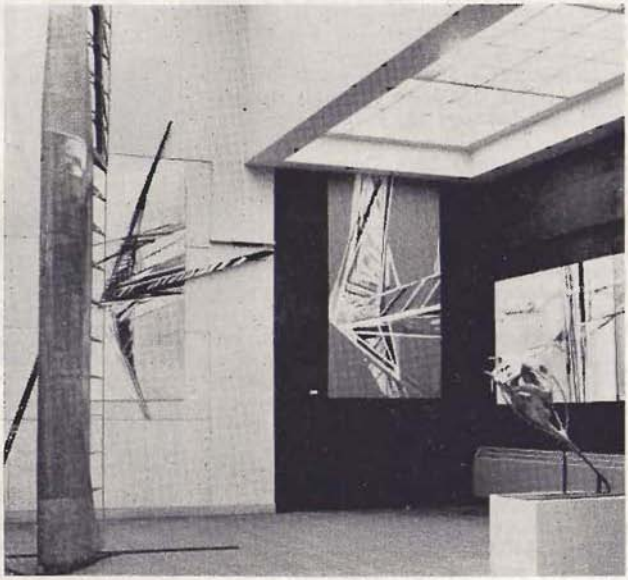
past. Suddenly I saw I could in fact fly over the point and took a line to clear the VHF aerial on top of the Tower by a very minimum. As I crossed I had 100 km. on the clock; not a very spectacular finish for the timekeepers and the few odd spectators, but it certainly had been exciting in the BJ-3.

Poor Ted, who had really engineered the whole trip, was about 20 minutes behind when I crossed the line, and had heard my final glide commentary on the radio. Resolving to avoid such a close finish (particularly as he had lots of time to spare to break the British 300-km. record) he climbed to 8,000 ft. above the ground 20 miles out, and then hit such fierce and prolonged downs, that he was forced to land in amongst the ant-heaps a few miles short. Proof indeed that final glide charts are not worth the paper they are written on in these conditions.

I undoubtedly had a very great deal of luck on this flight, with a perfect start and finish, and a pretty good middle leg, but the weather was not exceptional by Kimberley standards. In the very best Kimberley weather one can hope to average 750 ft. p.m. climb, for the best 3 or 4 hours of the day, and cloud base is often 17,000 ft. a.s.l. I guess that under these ideal conditions, properly flown, the BJ-3 could average 140 km/h. (86 m.p.h.) for a 300-km. triangle, and not much less for a 500. Who would like to wager on a 1,000-km. triangle before there is a man on the moon?

**Flight data:** Date 28th December, 1966.
300-km. triangle in BJ-3.
Actual distance: 310 km.
Time: 2 hr. 26 min. 5 sec.
Average speed: 127.4 km/h. (79 m.p.h.).
Average climb speed: 603 ft. per min.
Best (sustained) climb: 742 ft. p.m. for 8,528 ft.
Worst (sustained) climb: 565 ft. p.m. for 8,200 ft.
Total climb: 26,404 ft. Time climb: 43.8 min.
Total glide: 29,404 ft. Time glide: 102.2 min.
Average glide speed: 182 km/h. (114 m.p.h.).
Average glide: L (L/D) 34.4.
Final glide (accurate) · 10-kt. headwind? 70 km. in 22.5 min. for 7,872 ft. loss. L/D 29.2 at 188 km/h. (117 m.p.h.).

*Minister Klompé after her arrival in the Ka-7. The girl on the right is the daughter of the Secretary (Gliding Section) of the Dutch Aero Club*



*Some of the better paintings on show; also in foreground the only sculpture, and left, the wing of the Grunau Baby*

# SOARING ART IN HOLLAND

I WAS privileged to attend the opening of the Dutch Soaring Art Exhibition, at the Royal Academy in the Hague, on the 4th March. The Minister of Culture, Dr. M. A. M. Klompé, and her pilot, Mr. B. Fokkinga, Chairman of the Gliding Section of the Royal Aeroclub, arrived in a Ka-7 to open the Exhibition, spot-landing immediately in front of the Royal Academy, where City Councillor for Education and Culture and the Academy Director, each in a Ka-7, had landed a few moments earlier.

As compared with our own Kronfeld Aviation Art shows, this, the Dutch Exhibition, revealed a vast difference in concept.

I had been under the impression that the Dutch effort was to be a sort of follow-up on our South Cerney do, but I was told that in fact this was not so, and that a group of professional artists was approached early in 1965 to take part in a combined effort to get a Soaring Art Exhibtion together.

All artists were given the opportunity to have a flight in a glider and to spend as much time as they wished at a gliding site.

In Britain we started in the opposite way, by inviting glider pilots to paint aviation scenes, with the result that the majority of British paintings convey in a more photographic sense what gliding is all about. As the years have gone by, the number of abstract paintings has grown, but slowly; and still the number of conventional paintings entered far exceed the abstract impressions. Most of the Dutch paintings, however, were abstracts.

To me, many of the paintings did not seem to have any connection with "soaring art" and some of the exhibits could equally well have been hung in a railway or any other type of specialised exhibition.

This is not to say that I did not enjoy the paintings. Colour, form and shapes were exquisite, but one would expect this in any case from professional artists.

I am still not sure whether in fact the artists were giving an impression of what they actually experienced while flying in a glider, or whether they were using their habitual technique of painting and so the same painting would have resulted if they had merely been given a "lift" to the top of the G.P.O. tower.

This feeling of still being "earth-bound" was evident in some of the exhibits, as a number of artists had painted in or hinted at the red and white chequered cars used on most Continental aerodromes or gliding sites.

It was also interesting that the artist who managed by impressions in abstract form to appeal and convey far more in a gliding sense than most of the other exhibits was actually the only glider pilot among all the artists.

I vaguely had the feeling that it was not quite "U" to paint the more figurative picture (as, for example, the British entry and one or two others).

Mr. Koppenhagen (glider pilot, exhibitor and lecturer at the Academy) pointed out to me that if he were to be awakened by a cock-crow and it started a train of thought, it would not be the cock that crowed that he would think of painting, but the ideas that might come into mind, such as being free, and so forth.

All the same, these abstract paintings grew on one, and some of them were really quite impressive. If the Dutch are going to make this a regular event, it will be interesting to see whether the artists, as time goes by, will put more of a realistic impression on to their canvasses.

Among the exhibits was one sculpture which I think was admired by all who saw it.

As for the Exhibition lay-out, it was nice to see the paintings so well hung. There was an air of spaciousness and the glass roof did much to give the proper lighting effects. The paintings were supplemented by a showcase of extremely well-made glider models, and the far end of the room had a plain varnished wing of a Grunau Baby standing upright to great effect.

Since writing the above I have just heard that between 800 and 1,000 people visited the Show and that five of the 64 exhibits have been sold, including the one by Norman Hoad, three by Victor Trip and one by Arie Boon. If my memory serves me right, these were all conventional paintings!

R.H.

# CIVIL ACCIDENT REPORT No. 275

THE Board of Trade has now published the report on the Accident Investigation Branch enquiry into the accident to Slingsby Skylark 4, BGA No. 1069, which occurred near Easingwold, Yorkshire, on 6th May, 1966, in which Peter Hill was killed. Copies of the report may be obtained from H.M. Stationery Office, price 3s.

The summary of the accident states:—

"During a local soaring flight the glider entered a cumulonimbus cloud which was partially obscured by a continuous sheet of medium cloud; the aircraft sustained a medium to severe lightning stroke which melted or possibly vapourised the aileron cables and caused the wing centre-plane to disintegrate. The pilot, who was wearing a parachute, fell clear of the wrecked glider but for reasons which have not been established did not deploy his parachute and was killed."

The report shows quite clearly that the flight was well planned and weather information was obtained from the Bawtry meteorological office. Further, the pilot discussed his intentions with his CFI, who was also the tug pilot, and emphasised that he would not attempt to fly in cu-nimb cloud which had been forecast and, indeed, was visible from Sutton Bank. He did, however, propose practising instrument flying in suitable clouds.

The pilot had received formal training in instrument flying during his service as a pilot in the Royal Air Force.

In spite of the pilot's competence and planning, he inadvertently entered a cu-nimb which was obscured by medium cloud. He was unfortunate enough to intercept a cloud to ground type of discharge with currents in excess of 50,000 amps which would have raised the inside temperature of the wing to about 3,000°C, causing the aileron cables to vapourise and an explosive pressure increase inside the wing.

It is now quite clear that lightning strikes are lethal and it is doubtful if the bonding required by the BGA would be effective against a strike of this magnitude. The fact that the strike occurred at the relatively low height of 7,800 ft. would seem to indicate that one cannot determine if one is in a cu-nimb merely by the height achieved. It is not known if the pilot had any prior warning of the type of cloud in which he was flying, but it seems unlikely in view of the fact that he was in R/T contact with his crew and would probably have mentioned encountering static or seeing lightning.

The lesson to learn from this tragic accident is that **if thunderstorm activity exists or is forecast, it is extremely dangerous to enter even innocuous looking cloud.**

It is not known with any certainty why the pilot did not deploy his parachute. Evidence showed that he undid his safety harness and was probably ejected through the glider cockpit canopy by the forces resulting from the gyrations of the wrecked glider. There were no burn marks or other indications that the pilot was incapacitated by the strike. Medical tests suggested that all injuries were sustained on ground impact.

The most likely theory is that, following advice to delay opening his parachute until clear of cloud (to obviate the risk of being carried aloft in the updraught), the pilot was waiting for visual contact with the ground. Because he was in heavy rain and in all probability in a stable back fall position, he did not appreciate the proximity of the ground. A body has a higher terminal velocity than raindrops and this would cause great difficulty in looking down. The rain would appear to the pilot to be coming up at him, obscuring his vision and possibly causing disorientation.

In view of the history of the people being carried up in thunderstorms, the advice to delay opening the parachute is quite sound. However, in the light of this accident it would be as well to warn pilots that confusion can exist in conditions of heavy precipitation and under these circumstances, failing to open the 'chute until too late is a real hazard.

ROGER A. NEAVES,
*Chairman, Safety Panel.*

# B.G.A. NEWS

**Message from the Chairman and Treasurer to all B.G.A. Members**

When the audited accounts became available in March last, it became clear that the situation which we have avoided for the last 30 years had at last hit us, the Association had made a substantial loss of no less than £2,539 during 1966.

This was due to a number of reasons which were explained to all those who came to the A.G.M. at Cheltenham. Some non-recurring, but the main one —increase of British paperwork in every field of life is likely to go on.

We were then up against a really serious difficulty. We are not allowed, by our Articles—even if we wanted to, which we don't—to budget for a loss. On the other hand, since we cannot produce our Budget until some two months after the end of the year, we can only avoid budgeting for a loss by introducing a retrospective increase in charges, which is both un-British and unfair and un-everything else!

So this is what we have to do, and we can only ask everyone in the gliding movement to bite the bullet and help to keep our movement out of the hands of the money lenders. By showing that we are determined to remain solvent, we materially strengthen our chances to remain free from outside control.

**Fee Increases**

It was agreed at the A.G.M. on the 11th March, 1967, that the fees for the following should be increased with immediate effect:

A and B Certificates: 7s. 6d. Badges: 5s. (no changes).

C and Bronze C endorsements: 10s. Badges: C 5s., BC 7s. 6d.

Silver and Gold C endorsements: 30s. Badges: SC 7s. 6d., GC 20s.

Issue and renewal of C's of A. Members: £3 13s. 6d. Non-members: £5 15s. 6d.

Private Owner Group Membership: £4.

All subscriptions due from Members on the 1st January, 1967, which would normally have been payable for a period of 12 months, will now only cover the period 1st Jan.-30th Sept., 1967.

**Competition Numbers**

In order to keep a tighter control on the use of these numbers it has been decided to levy a tax of £1 per annum (Jan. to Dec.).

Competition Organizers will in future be asked to supply the B.G.A. with a list of competing gliders and their numbers. Any competitor found to be using an *unlicenced* number will be *hors concours* as far as the Rating Scheme is concerned.

Would pilots whose glider carries a competition number, and who have not been contacted by us, please inform the Office, giving details, etc., as soon as possible.

**British Team "Preliminary Organizer"**

Council has appointed Bryan Jefferson to be "Preliminary Organizer" for the British Team entry to the 1968 World Championships. He will be responsible for all arrangements (apart from team selection) up to the time the Team Manager is appointed.

**Competition Structure in 1968**

At its April meeting Council agreed that the following changes would be made in the structure of competition flying, with effect from 1st January, 1968:

(a) Leagues 1 and 2 in the National Championships are abolished.

(b) There will be two "National" Class Championships:

(i) OPEN CLASS (entry open to any type of glider);

(ii) SPORT CLASS (entry open only to gliders that are 100% or more on the 1967 B.G.A. Handicap list, and to any new type of glider that is given a handicap of 100% or more by the B.G.A. in the future).

(c) Handicapping *will* apply in the Sport Class.

(d) Rating:

(i) If, in 1968, the demand exceeds the supply of places in either of the two National Class Championships, the rating list produced under the existing (1967) rules will be used to determine priority of entry.

(ii) If the present Rating Scheme is retained to determine priority of entry into contests held in 1969,

both the National Open and Sport Class Championships will be valued at 100% for rating purposes.

A further announcement will be made later in the year regarding:

1. Whether, in 1968, the two National Class Championships will be held at different sites, or concurrently at the same site.

2. Whether there will be any *British National* Class Champions in 1968 (in view of the World Championships taking place in that year).

3. Whether two Champions will be declared, and two placing lists published for the National Open Class Championships: one based on an index of performance (with handicapping) and the other based on overall results (without handicapping).

4. Whether a Standard Class contest will be held within the Sport Class.

5. The maximum number of entries allowed in each of the National Class Championships.

6. The structure and the extent of the devaluation of Regional Championships in 1968.

7. The Handicap list to apply in 1968.

8. The method of determining the priority of entry to contests in 1969.

(These changes are discussed in Flying Talk on page 235.)

**National Ladder**

There are already 41 pilots representing eight Clubs on the ladder. On the 31st March, G. B. Atkinson of the Leicestershire Club, holds the lead with 1,693 points, gained in three flights.

## OBITUARY

### D. M. KAYE

ON the 9th April Michael Kaye died following injuries received in a gliding accident at Camphill some seven months previously. He was thirty years old.

To speak of a lifetime in gliding is usually an exaggeration, but in Mick's case this was literally true. His father, Cyril Kaye, was a founder member of the Derbyshire and Lancashire Club and Mick's life at Camphill extended from earliest childhood to the role of Chief Flying Instructor, the position he held in his latter days at the Club.

His flying career began in the early post-war years, and whilst still a schoolboy he made a number of quite exceptional flights in his father's Olympia. Later, he became part owner of an Eagle and pilots throughout the country will remember the enthusiasm and skill he showed in flying this aircraft in a number of Nationals.

Meanwhile, his prowess in flying at—and from—Camphill had become almost legendary. He was particularly interested in wave flying, and it became normal for other pilots to land and report mild wave to 1,500 ft., only to have Mick return a couple of hours later with another Gold height on the barograph. His achieved height of over 16,000 ft. above Camphill, made many years ago, still stands as a Club record.

Two years ago he took on the job of C.F.I., and his own enthusiasm for gliding permeated throughout the Club. Early starts were the order of the day and the first man at the hangar doors was usually Mick.

Last year he returned to the Nationals in his Dart 15, and a little later in the season made an outstanding flight of over 260 miles in a gallant attempt at Diamond distance. His abilities continued to develop rapidly, and it is doubly sad that he never had the chance to compete in the Dart 17R his group acquired shortly before his accident. There is little doubt that, in such an aircraft, his talents would have shown themselves to be comparable with the highest standards in the country.

We shall miss him at Camphill more than words can express. His name is inscribed on virtually all the Club trophies and his memory will endure with equal permanence. But Mick's influence in British gliding extended into many spheres and our own pride in having him as "one of us" will be shared by all those members of the gliding movement fortunate enough to have known him.

J. B. J.

# BOOK REVIEW

**A Directory and Nomenclature of the First Aeroplanes 1809-1909,** by CHARLES H. GIBBS-SMITH. Published by H.M. Stationery Office, 1966. Price 27s. 6d.

AEROPLANES include gliders in this Science Museum publication. The first section gives all the inventors in alphabetical order, with notes on every flying machine they are known to have built. Thus it starts with Ader, whose claim to have flown 300 metres under power is duly exposed, and ends with Whitehead, who was alleged, in a recent book by Stella Randolph, to have flown before the Wright brothers. That book included two photographs of Whitehead airborne in two of his gliders about 1900-1904, but the Connecticut Aeronautical Historical Association got hold of the negatives and discovered that each glider was suspended from a wire. Cayley, Chanute and the rest are also included.

In this section, which takes us to 1903, gliders are in the majority, but in the next section, 1903-1909, many familiar names from aeroplane history appear, and some of their machines are illustrated. But José Weiss is absent.

Next comes a "Chronological list of the first aeroplanes in order of their first take-offs", and again there are many gliders, starting with Cayley's No. 1 in 1809. Finally comes a "List of aero-engines and the aeroplanes they powered", and an account of the first aerodromes, flying schools, aviation meetings, and fatalities (there were only ten up to the end of 1909, starting with Cocking in his 1837 parachute).

This is a most valuable book for students of aeronautical history.

A.E.S.

# CORRESPONDENCE

## PROFESSIONALISM, RATING SYSTEM, NATIONAL LADDER, HANDICAPPING AND THANKS

Dear Sir,

I have been disturbed by the recent spate of letters complaining that "they" are not being "fair" to the letter writers.

Firstly, some non-private owners seem to be bitter about their lot in life. This attitude is unreasonable and serves no purpose. I fervently hope its political overtones have no future in our sport.

No one has the right to demand that "they" (B.G.A., clubs or private business) should lay on facilities and aircraft at cheap rates to suit him. It will be a bleak day when gliding joins the social services.

Dare I suggest the opposite? Clubs to provide communal launching facilities and training only, and then members all go into syndicates. A certain Blanik is owned by a syndicate of ten and this appears to work well. The club Skylark does not seem to have more than ten or twelve regular pilots. Not much difference, but I suggest that the former situation is a lot healthier both for the pilots concerned and for the club. If someone has the time and money to operate an up-to-date glider, due to hard work, self-denial, brains or even luck, I shall applaud him and wish him well. The last thing I shall do is moan about it and expect him to subsidise the rest of us.

How many people really appreciate what it costs to run a glider? In any given circumstances availability is directly proportional to the price per hour. At £3 the average club could double its fleet. (Few private owners get away with less.)

The low hours per "member" are more the fault of the individual member than of other circumstances. Yes, club facilities and management could be a lot

better, especially in leadership cn the flying field, but let us contribute, not criticise.

Secondly, I would like to take issue with the critics of the rating system and the national ladder. Any system has to be a compromise between conflicting extremes (e.g. the established pilot who misses competitions for a while, and the man trying to get into the Nationals from scratch). By its very nature a compromise will not serve the interests of anyone who is "off centre". One could list a dozen of these conflicting factors, but this would be pointless, as I for one am prepared to give full credit to the Flying Committee for already having considered them all and then coming to a balanced conclusion.

Thirdly, handicapping is essential if the great majority of pilots are to compete satisfactorily. Compared to this majority need, the eniquities mentioned are of minor importance. The worry over disincentive to develop better machines is of little importance to the average pilot. The dinghy racing fraternity is years ahead of us with systems of competition, and a very large number of classes have evolved with rules that are specifically designed to exclude any development at all. The reasons for this are obvious and apply even more to gliding.

In any competition why cannot we have an overall winner, class winners and a handicap winner, and keep everybody happy?

Finally, can I assure our B.G.A. officials, committee Chairmen and members that the great majority of us are intensely grateful to them for their initiative and hard work on behalf of our sport.

*Yorkshire Gliding Club.* BARRIE GOLDSBROUGH.

## HANDICAP OF THE CIRRUS

Dear Sir,

It may be of interest to note that the handicap of the Cirrus based on the curve in your April/May issue works out at 77%. This is not as good as the AS-12, but lies within the area of probability of the D-36. As the curve is alleged to be the result of flight tests, it may be reasonably accurate.

*Salisbury, Wiltshire* TONY DEANE-DRUMMOND

## RAISED B.G.A. SUBSCRIPTIONS

Dear Sir,

Anyone who buys a commodity or a service at an agreed price is likely to feel aggrieved at receiving an extra bill because of a subsequent raising of prices. Doubtless many private owners will be incensed at the action of the B.G.A. at Cheltenham in raising subscriptions and demanding retrospective payment, incidentally without explanation. Such a supplementary charge seems to me of doubtful legality and to show a degree of financial and relational ineptness which makes the cheque even harder to sign. The time to fix 1967 charges is 1966. If the B.G.A. is hard up, it would be better to pass the hat round honestly than perform shady evolutions of this type. [See page 245 for Chairman's message.—ED.]

*Lasham, Hants.* H. HILDITCH

## PHOTOGRAPHIC EVIDENCE REGULATIONS

MR. HANS PIETSCH writes from Albany, California, that he was very pleased to read in SAILPLANE & GLIDING that the B.G.A. has accepted photographic evidence of turning points for competition flying. The same has happened in Germany. This will make the organization of competitions much easier and—most important—less expensive.

But he strongly disagrees with Section 1, "Photographic Evidence Regulations", Section 1 (S. & G. Dec.-Jan., 1966/67, p. 461), and can't accept some of George Burton's statements in the February-March issue (p. 36). Mr. Pietsch questions whether the "Instamatic 25" is the most suitable type of camera; there are other cameras which are technically much superior and at least as reliable. What in his opinion is most important is that the pilot knows his camera pretty well and

is able to handle it properly even if he circles in a gaggle at the turning point together with great quantities of plywood or fibreglass. He thinks the "Instamatic" is still too bulky; and himself uses a "half-size camera" using regular 35 mm. film. It is real pocket size (2.7 × 4.2 × 1.6 ins. and weighs 370 gm.). He adds that the cartridge-films used for the "Instamatic" are unrealistic, expensive and have no better handling characteristics for the competition organizer than the normal 35 mm. cartridge.

Mr. Pietsch believes it is clearly beyond the power of any gliding association to force pilots to use, and therefore in most cases to buy, a special camera for photographic evidence of turning points. If it is entirely the responsibility of the *pilot* to prove that the turning point has been rounded correctly, it is also the responsibility of the *pilot* to choose the means of furnishing evidence; thus *he* must decide which camera is most suitable for *him*.

Mr. Pietsch believes that Section 1 should be changed in such a way that it *only recommends* the "Instamatic 25" as the camera to be used in competition flying.

SAILPLANE & GLIDING, he says, is read by quite a number of soaring pilots all over the world, thus he thinks it is the right place to discuss the "compulsory buy-a-camera regulation".

## ALTITUDE WITHOUT OXYGEN — A WARNING

Dear Sir,

I have just read George Truscott's article "Altitude Without Oxygen—A Warning", which appeared in the March, 1967, issue of *Lasham and Gliding*. I now have a chance to express a point of view which I have held for several years and which will also complete George's warning.

In the past there have been a number of known cases of pilots taking two-seaters without oxygen to high altitudes with young and inexperienced passengers aboard. Some of these flights broke or set up records.

It is my opinion that instructors or passenger carriers who not only risk their own health but also that of an unsuspecting, inexperienced, young pilot not only deserve to have their instructor/passenger carrying approval withdrawn but also that any records they may have broken should not be recognised.

George states that unless a pilot has precise scientific knowledge of his own reactions at specific heights he should not climb above 12,000-14,000 ft. without oxygen: "Individual tolerance to anoxia varies considerably from one body to another and even with the same individual from *day to day*". This is very true; therefore, how could anyone know the capabilities of his passenger?

It is no use at all for a pilot to say to his passenger: "It's OK, I'll go down if you don't feel well", etc. What would be a passenger's answer to the query "You OK?" from the ace(?) at the front/back/side if that passenger is suffering from the initial effects of anoxia, i.e., "an enhanced sense of security and well-being, a diminishing sense of responsibility, together with a rapid deterioration of the physical reactions and mental faculties". "Sure, I'm OK" would probably be the reply. "The greatest hazard of all is that, like the inexperienced drunk, the subject is usually blissfully unaware that anything whatsoever is amiss."

Lastly, a warning to pilots who do have oxygen and it runs out when they need only another couple of hundred feet for their Diamond, etc. Dwell on these figures which are average for most people.

If your oxygens fails, you lose consciousness at:

| | |
|---|---|
| 22,000 feet in 4 minutes | 31,000 feet in 45 seconds |
| 25,000 feet in 3 minutes | 36,000 feet in 30 seconds |
| 28,000 feet in 1 minute | 40,000 feet in 25 seconds |

Do I need to add "Get those airbrakes out, quickly!"?

*C.F.I., Phoenix Gliding Club.* PETER DAWSON.

[The flight referred to is summarised in Overseas News under Argentina.—ED.]

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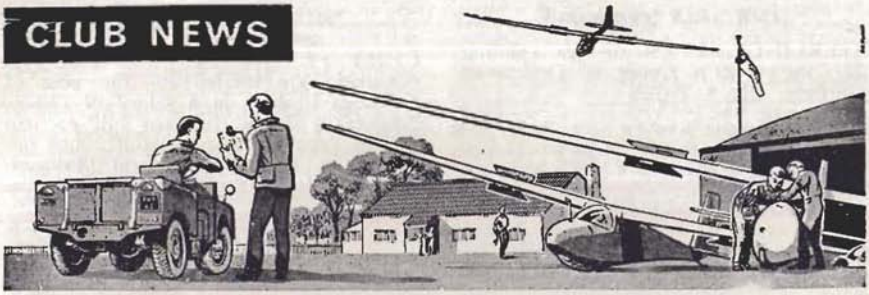
# CLUB NEWS



COPY for inclusion in the August-September issue should reach me by the 14th June, and that for the October-November issue by the 16th August, at 14 Little Brownings, London, S.E.23.
*29th March*, 1967

YVONNE BONHAM (MRS.)
*Club News Editor*

## BATH and WILTS

THE early season has seen some unusually good soaring by some of our more experienced club members.

In a recent strong northerly we set out to soar the Westbury ridge and found to our delight that from the ridge at one period of the day we were able to contact wave and a couple of pilots used this to a little over 7,000 ft.

Although we had our first taste of wave flying on Boxing Day last, when the wind was precisely on the reciprocal, this was the first occasion that we have found it going to this sort of altitude. The longer the history of our club becomes, the more interesting and exceptional we find our site to be.

Joy Lynch, a member of the Skylark 4 syndicate, used the wave to top the 7,000 ft. and thus complete her Silver. Our first woman member to achieve this distinction.

Our most recent acquisition for the club is a Skylark 3F, which, in the first spate of early enthusiasm by members qualified to fly it, is already well and truly earning its keep in soaring fees.

K.N.S.

## BRISTOL

WE regret to report the passing of our President, Sir Egbert Cadbury, D.S.C., D.F.C., D.L., M.A. A member of a famous family and well known in Bristol business circles, he had a distinguished flying career during World War One. Not many members knew him but a more helpful and good friend of the club will be hard to find.

Sadly we continue our report with the news at Easter of the death of Josephine Etheridge. There are no club members and very few course members of latter years who will not be deeply shocked. Jose had not enjoyed good health for a long time. Despite this, she did a great deal of work for the club, most of it unpaid, and our sincerest sympathy goes to Peter and her family.

Wave flying has occupied our thoughts more than usual this year, Ron Sandford kicking-off with a flight to 12.000 ft. on the first day. Subsequently, Mike Harper obtained his Gold height in wave. The best height over the site was achieved by Rick Prestwich, who flew down from Long Mynd, wave all the way, and then sat at 16,000 over the G.P.O. tower exhorting us on the R.T. to "get cracking".

With another Gold height claimed (Mark Westwood) and several Silver and Bronze durations obtained, flying has made a good start. With the acquisition of an Auster augmenting the services of the Tiger Moth, and the club operation of the Mike Pope syndicate Dart 17R, we are all set for the season.

On the ground, the hangar project is well under way. The eleven tons of steel required is on the site; cutting and drill-

ing is nearly complete. Foundations are being dug and fabrication should continue through the summer if all goes to plan. All this work is being done by members under the able direction of Tony Pentelow, who is never to be found outside the workshop these days.

B.G.

## CORNISH

BY the time these notes appear in print the Cornish club will have reached its tenth birthday. To say that the club is not only still going but is going very well indeed is sufficient tribute to the skill and energy of the members. However, on this tenth anniversary it is only right that we should also remember that without the foresight and determination of George Collins, Ted Berry and Bill Robbins there would have been no Cornish Gliding Club.

Over the ten years we have averaged some 5,500 launches per annum with, during the last two years, a small but definite increase in the resulting airborne time. We usually get relatively little flying in December, but in 1966 we succeeded in soaring on six out of eight days, clocking up sixteen hours of flying.

We have good reason to feel that this was not just a flash in the pan, since the results for 1967 to date show that the flying time compared with the previous three years from approximately the same number of launches has doubled. In no small measure this must be due to the training policy of our C.F.I. and his Instructors. In particular we must congratulate our Vice-Chairman, Geoff Hayman, on achieving a Silver C and a Category in just over two years from scratch.

The Perranporth wave put in an appearance on 19th March. Normally the cliffs give lift up to 800 ft. or so a.g.l., but on the 19th Ian Pilling kept the Swallow up for five hours, most of the time over 1,000 ft., whilst the Oly 463 took George Tuson to 3,300 ft. during a five-hour flight.

A barograph trace showed seven distinct peaks occurring regularly every 55 minutes, the troughs coinciding quite definitely with an up-wind jump of the leading edge of the cloud over the cliffs. At about 2.45 p.m. and again 50 minutes later, the Oly was going up at two knots in dead smooth air, all along the cliff, reaching cloud base at 3,300 ft. There were definite lenticulars mixed up with the general clag out to sea, so there were all the symptoms of a wave effect. The nearest land is Ireland, 150 miles way, so what triggers it off? We should be very interested to have suggestions.

G.E.T.

## COVENTRY

WE have just completed the purchase of a Capstan from the Northampton Club, and this first flew at Bosworth during the holiday week-end, though a succession of cu-nimbs resplendent with thunder, lightning, snow and hail one after the other for four days is not everyone's idea of a holiday!

One of our three Tiger Moths has now returned to the site having been on loan to Portmoak for three months, and we await the return of the third, which is being re-built at Sywell.

A new syndicated Dart 17R is eagerly awaited in the next few weeks by Messrs. M. Smith, Fay and Partridge, and the former will carry the club's banner into battle in the Nationals with this aircraft.

Recruitment for our full-time and also one-day courses is going very smoothly, and interested parties should apply to the Course Secretary, 74 Cotswold Avenue, Northampton.

F. W. F.

## CUMBERNAULD

MARCH has certainly lived up to its reputation of coming in like a lion, but, unfortunately the lion is still with us. The weather has limited flying, but those of us who have been airborne are very enthusiastic about the potential of the area. Because the airstrip has been so soft after the recent rain the value of our retrieve winch has been much appreciated. With the acquisition of another tractor for driving the winch our M.T. section is increasing. The mechanical pundits report that the former Edinburgh Corporation bus will be ready for use for trial launches shortly, and we look forward, therefore, to having a second winch on the site.

We shall be pleased to see members of other clubs who are passing through the district. Flying is on Sundays only at present, but we hope to be able to operate on Saturdays also.

T. J. G.

## DEVON and SOMERSET

SINCE last writing, the week-ends have not been too kind in the matter of weather, but one member managed 84 minutes on the South Ridge in February and it is noticeable that "circuit" times have increased from an average of four to five minutes to something like ten.

Initially it was intended to move permanently all but the Tiger and one Swallow to North Hill from Dunkeswell, but it was felt wiser, during the worst of the winter at least, to take advantage of our tenancy of the Dunkeswell hangar and workshop facilities for protection of equipment. This seems an interim period of commuter flights until at least a part of the hangar at North Hill is built. Plans are complete and materials available, so that by the time these notes are in print the workshop and store, together with some hangar space, should be in use.

Quite a lot of thought has been given to club flying training and arrangements have been made for organised pre-solo courses mornings and evenings on Saturdays and Sundays.

A pre-solo course the week before Easter produced three first solos and one club member got in his Silver C duration. This course was largely due to the efforts of Gerry Leat, who has also put in a great deal of work in rigging up a telephone system between launch and winch points. He gets understandably "fierce" when these lines are not used in the approved manner. Small transistorised speaker points have since been added by our electronics expert, John Fielden.

A.E.R.H.

## KENT

AT last, with winter behind us we hope, the churned-up mud has dried leaving a hard, rutted surface on many parts of the site, especially in front of the hangar. The extra concrete being laid here, thanks to Geoff Tilley, should be invaluable next winter.

Easter week-end saw the return of the two-drum winch after its winter overhaul, so we are back to full launching capacity now, with three cables and the Tiger Moth.

At the time of writing the season has definitely begun, with the first cross-country on 12th March — a 60-km. out-and-return by Mike Honey (Skylark 4) along the North Downs to a point 1 mile S.W. of Rochester Airport. This trip is obviously going to be very popular, as it was repeated the same afternoon by Ray Hatton in the same aircraft, twice on Good Friday and four times on Easter Saturday, all flights shared between the Olympia 463 and the Skylark 4. The first cross-country resulting in a landing out was 37 km. down to the coast near Deal, by Don Daniels in the Club Olympia, on Good Friday.

Easter Sunday brought in a bag of Silver (all subject to confirmation, of course). Peter Kingsford, in the Oly. 463, trailered to Redhill and flew the 70 km. back to Challock in 65 mins., whilst Howard Johnson and Brian Foster, in the Club Olympia and Swallow respectively, were aero-towed 8 km. to the west-facing Wye ridge both completing their 5 hours. This is the first time this has been accomplished at Wye and to put it on record a B.B.C. camera crew was there to film their landings.

Our five candidates for the Swallow competition are hard at it preparing for the elimination tests, and although not all of them can get through their flying will obviously benefit a great deal as a result of this scheme.

M. H.

## LEICESTERSHIRE

SINCE we last contributed to the club columns winter has come and gone with surprisingly few non-flying days at Rearsby. During the "off season" we have enjoyed and, we hope, taken heed of a series of six lectures by the pundits covering most aspects of gliding.

The soaring season started for us this year in February, when a cross-country flight of 27 miles and two C flights were made. Two pilots completed their Bronze C.

Our congratulations to Barry Atkinson and Chris Simpson, who recently took their Dart 17R to Portmoak, where Barry gained his Gold C height. Both

then followed this by achieving Diamond heights in wave, Barry to 18,500 and Chris to 19,500 feet. Well done! During its stay at Portmoak the Dart climbed a total of nearly 80,000 feet from five launches.

In May we are adding a Skylark 4 to our club fleet. This will allow cross-country flying in club aircraft without disrupting the training and soaring for those not up to this standard.

C. D. H.

## LONDON

FLYING done for the first three months of this year was running above last year's, which was a record. This was primarily due to reasonable weather and a fair number of hill soaring days. As a result there have been several successful five hour duration flights. Up to the Easter week-end the only cross-country flight of significance was by Jim Bellew, who reached Swanton Morley with the Ka-7. Winds have been predominantly between south-west and north-west, and frequently strong, which is our excuse for not being first this year getting the Plate.

Keith Chard came to join the fold as a resident instructor in March, while Geoff Naylor will be leaving after almost two years on the staff. We understand he will be flying powered aircraft for a change. Another recent departure was Pat Foster, who intends living in Majorca. Pat has been associated with the club for many years, and was one of the earliest of the fairer sex to gain a Silver C. We hope the Mediterranean climate will suit her better than ours.

In common with other clubs we have difficult times ahead, mainly from the financial aspect. Putting the buildings in good condition is taking a fair chunk of our income, while extra land and equipment needed for expansion is going to increase our bill to something over £10,000. The assistance of the Ministry of Education makes matters somewhat less critical, but we still have to try by whatever means we can to get money from the public. We plan to hold another air display this year, the weary protestations from last year's (and the one before that!) committee dying on their lips when faced with bare facts. The alternative, which nobody really wants, is increased subscriptions or levies.

Several new shapes have graced our skies recently, among them John Jeffries's 34-year-old Scud 2, a rebuilt and modified Skylark 2 owned by Martin Simons, and a Foka 4 belonging to Mike Riddell. For variety of airborne chairs our club takes some beating!

M. P. G.

## OXFORD

IF, like many other clubs, the increased launches and soaring times for the first quarter of the year are a trend-setter, let us hope the best weather will be dispensed at week-ends. So often during the week we gaze in vain at a superb sky.

Rather long C's of A. inspections on the club Skylark 2B's and 3F's have been carried out in our own workshops for the second year running. The T-21B *and* Olympia, the club money-makers, went to Ken Fripp for professional inspections within a week each as we could not possibly do the work ourselves in the time allowed.

Only praise of her handling qualities is heard from pilots of the Skylark 2B, now that "Smokey" has fitted the elevator mass balance modification, and we wonder how we have existed so long without this refinement.

A new piece of equipment is about to roll out of the hangar with a max. L/D of O at any speed! Devised by your scribe, we have constructed a launch point control van, fully glazed, without an engine needing maintenance, with ample space to carry all the usual launch area paraphernalia and, most important of all, tea-making facilities.

Easter week-end proved successful despite high winds and low temperatures, culminating in John Adams taking his Dart 17R to 9,000 ft. plus in a local squall causing it to shower sleet galore on members holding down the rest of the fleet.

C. J. T.

STOP PRESS.—We report with deepest regret the death of Gerald Weeks and Leslie Saving in an accident involving our T-21B on 9th April. The accident is under investigation by the A.I.B.

## SCOTTISH

IN spite of four weeks' gales a remarkable amount of flying activity has been enjoyed (even by a sheet of corrugated roofing). We have been host to visitors from several clubs South of the Border, and most of them were extremely well equipped for wave-riding. Not only did they bring their own Met. man, but also heaps of bottles (of oxygen) and barographs. Some pilots were seen fixing two barograms after successful flights—just to "mak' siccar". Our guests benefited from mid-week conditions, whilst most club members suffered several non-flying week-ends. Nevertheless, it was Charlie Ross who gained the best height.

The deputation to Cheltenham for the B.G.A. meetings renewed acquaintance with many well-kept faces, but our own resident instructor, Ansgar Sambale, caused some confusion, being at present without his distinctive beard.

However, whilst sorties from other clubs and private owners are most welcome, ab-initio and Bronze C type pilots may well find our courses of benefit. Start right from scratch and you too can become a Gold or Diamond —digger. M. B. R.

## STAFFORDSHIRE

OUR activities recently have been more political than aeronautical. At the club A.G.M. the following elections were made: Chairman, Boris Clare; Vice-Chairman, Lt.-Col. Christy; Secretary, N. Bartlett; Treasurer, P. Felthouse.

The attendance at the A.G.M. was of the order of 70 per cent of the club membership, which seems to indicate that our members either are highly corporate minded, or will seize avidly an opportunity for argument, or like an excuse for an evening's drinking with glider types.

The Treasurer was ushered into office by the outgoing Treasurer with a fairly substantial loss on the previous year's operation. This will probably mean that our flying fees will have to go up, bringing them more into line with the fees charged at other clubs.

We are looking forward this season to further five-hour flights in thermals, which is a speciality of the site. We welcome visitors and can provide aerotows, and the close proximity of Stoke-on-Trent seems to provide the right thermal-producing atmosphere. Moreover, we have the use of a large disused airfield, giving us an operating area comparable with that of Lasham. R. B. L.

## SURREY and HANTS

THE highlight recently has been the arrival of our new Dart 17B. All (who are permitted) have been flying it and are properly enthusiastic. It is difficult to be objective about a machine which handles so well, but great things are hoped for.

The recent spate of good soaring weather has begun the soaring season well, and we're hoping for a good summer for a change. We shall be well represented at the Nationals and also at most of the Regionals.

A.R.I.

## SWINDON

THIS year has begun very well socially by the establishment of a regular Wednesday club night (visitors welcome), which has consisted of food, provided by "volunteer" wives, film shows, work and talk, mainly talk. Flying has not been neglected, however, and the flying list is long, with newly acquired young members awaiting their turn. Some of them were introduced to us as a result of a very good coverage which we received in the local Press.

Plans are under way for an early task week in May, with high hopes of good weather and Golds. A long-overdue exploration of one of the local ridges has at last been carried out successfully by Malcolm Parkins, and it is to be hoped that we shall all soon have the opportunity to expand our flying experience in this direction. E.J.W.

## YORKSHIRE

AFTER a remarkably mild winter, with only one or two very light coverings of snow, Sutton Bank has now taken on a very lush look. The last year's complete site clearing, drainage and grass-seeding now offers a verdant

airfield. An extensive area to the north-east, hugging the hill edge, has been reclaimed as a useful undershoot area and increases the airfield to over 80 acres. On the domestic front, the centrally-heated accommodation wing, integral with the clubhouse/hangar unit, has permitted the removal of the old wooden clubhouse.

On the flying front, the Piper Super Cub has tended to revolutionize flying operations. It has proved the best tug so far and carried out over 1,500 launches last year, some 30 per cent of the total. A new and very successful technique has been evolved to clear morning queues of P.O. aircraft on hill soaring days—a short, sharp tow to some 400 ft. on the hill and straight round the circuit for the next one. The cost is the same as for a winch launch, so there is no lack of patrons. The club fleet rationalization remains as: T-21, two Swallows, Eagle and Skylark 2. After one year's operation, it is now apparent that the swap from a second T-21 to Eagle was the correct choice for our site. The private owners' census indicate about 14, including five Skylark 4's and Sky, Dart 17R and 15, Eagle, Capstan, Blanik, vintage Olympia and Kite 2, and a very new Ka-6. Visits by Terrier, Turbulent, Nipper and Cessna also help to mix the air well.

The early March wave was contacted as usual, although not quite as well as last year. Saturday 4th gave Nick Gaunt his Gold C height to 10,500 ft. in his "4", with the next best at some 8,000 ft. The Sunday saw the wave force everyone hard down close to the hill for about 30 minutes, and then up they all went to between 4 and 5,000 ft. However, David Lilburn climbed to 6,000 ft. and then sacrificed some height to risk a forward wave—his reward was 8,300 ft. The following week-end had everyone on their wingtips, with some very strong and narrow-cored thermals, in a roaring westerly.

17th March saw the Annual Dinner Dance at the medieval Merchant Taylors Hall in York. Some 120 members and guests attended. The guests of honour were Group Capt. and Mrs. Casement, of R.A.F. Topcliffe, and guests were also noted from the Doncaster, Ouse and Newcastle clubs. The club trophies were presented by Mrs. Casement to: Chris Riddell, Hartness Cup for Altitude, height gain 16,400 ft.; Mike Wilson, Award of Merit, distance flight, 132 miles; and to Lindsay Maclean, Lockwood Novices Trophy, for gaining his Silver C in a year.

Early in the year we welcomed John and Edith Isaac, who have taken over the positions of Assistant Instructor and Secretary, respectively. M. J. C. W.

# SERVICE NEWS

## AIR TRAINING CORPS
## No. 611 G.S. (Swanton Morley)

THE School's 1966 target of 1,500 Air Experience launches was exceeded with 2,067 launches, and the target of 57 Proficiency Solos was beaten with 84 solos. Further, Cadets earned 10 C's, 6 Bronze C durations, and 4 Bronze C's completed. Instructors earned 2 C's, 3 completed Bronze C's, and one Silver C duration.

These figures are from the School's Newsletter No. 2, a commendable little publication which also includes light reading, examination hints, good advice and personal news. We learn that the magazines taken in by the School are: *Air Clues, Aircraft Recognition* and *Air Cadet.*

## BANNERDOWN

IT was probably appropriate that there should be a "cracking" week at Easter. However, with typical perversity the holiday week-end produced unstable sou-westerlies instead of the usual nor-easterlies and wind velocity curtailed training. The following week-end saw the arrival of two fronts, so lift lived up to its reputation of being available Monday-Friday inclusive.

However, during the period activity has been respectable with 854 launches for 117 hours. All aircraft have had full utilisation and personal achievements have been good.

Conditions were not fooling on 1st April; at 11.30 a.m. five club aircraft

were observed circling in one thermal and Mistress Tutor (with a lady member aboard!) hurrying to catch up; however, flying regs. and L/D ruled otherwise.

On the ground, work has continued unabated. The 419 and 2B have been majored. The clubroom has been completely redecorated and endowed with a delightful mural in oils by Jean Jones. Gliders are depicted thermalling against the most promising sky we have ever seen at Colerne, so this scene and Dan Goldworthy's magnificent stereo player keep spirits high on social occasions.

Launching equipment is well maintained by Tiny Whitney and Co. The cable retrieve van has been re-structured and given a "transatlantic" mod in the form of a swivelling driver's seat complete with wire lunch basket underneath. This ensures driver re-fuelling on the move and if augmented by "drogue and probe" for liquid refreshment, almost perpetual motion will be ensured. Towards the end of the period we heard of the past and the future almost in one breath with the publication of the award of the Seager Cup for the best GSA two-seater performance — by Willson/Daniels—and the expectation that a Bocian will arrive shortly.

P. H.

## CLEVELANDS

NOW that Leeming has taken over a Master Diversion commitment we have moved 15 miles down the A1 to Dishforth. Several club members have not got used to this and "land outs" due to uncertainty of position have increased and were particularly noticeable over the Easter break. Al Machin had to cast off prematurely whilst flying the T-21 on aerotow, and the retrieve was carried out by club members pulling it back across the flyover over the A1, much to the consternation of motorists passing underneath. Al had to buy two rounds of beer that night, as later in the day he took the Ka-6 to 12,500 ft. for Gold height. On the same day, Andy Smart, Ian Wheeler and John Stockwell all managed to hoist themselves over 7,500 ft. in wave to claim their Silver heights. These three have also managed to get their five hours over at Sutton Bank. All these achievements helped to christen our new bar over Easter.

Since moving to Dishforth we have soared every flying day and launches, hours and certificates are exceeding previous years, which makes for a high level of morale and enthusiasm, especially as members try hard to get sufficient qualifications to fly the latest addition to our fleet—an Eon Primary. This has already logged over 100 winch launches plus one aero-tow with the intrepid ace Leigh Hood at the controls.

J. S.

## FENLAND

MEMBERSHIP has steadily increased over the last two months and is now over the 100 mark, with the training programme in full swing.

Our recent expedition to the Long Mynd was, apart from one out-landing, a great success, producing no less than nine Silver duration legs. "Wilt" Jones contacted wave which took him to a little over 9,000 ft.

Our treasurer is temporarily out of a job, as all the cash has been spent on another new winch engine. Thanks to hard work on the part of our M.T. members and others it was quickly fitted and the sound of it "running in" has been heard over the Easter break.

R. G. J.

## FOUR COUNTIES

OUR statistics for last year, which somehow escaped inclusion in the last issue, were as follows: 3,300 launches, 440 hours, seven A and B, one C, three Bronze C, ten Silver legs, and three completed Silver C's.

Harry Orme is now our C.F.I., replacing Geoff Barrell, who left last summer. Flying continued throughout the winter with a greatly improved launch rate arising chiefly from the performance of our recently acquired diesel Vanguard cable-retrieve car. Both winches have been dieselised thanks to the efforts of Brian Conolly and his helpers, and are now operational. The launch-point bus, containing timekeeper's box and snack bar, was completed at the end of last year and is without any doubt an unqualified success. Even on the coldest days, wives and girl-friends have been happily brewing up in the bus.

A very successful twelve-day expedi-

tion to Sutton Bank during March with the Ka-6 and Oly produced a total of just under 60 hours flying and two Silver C legs for Chris Waller and a cross-country just short of Silver distance for Charlie Donaldson.

S. N. H.

## FULMAR

THE club was shocked to learn of the death of Sub. Lt. Robin Bremner (21), who was killed when his Hunter crashed into the sea in St. Bride's Bay on 22nd February while on a training flight from R.N.A.S. Brawdy. The son of Cmdr. W. H. Bremner, R.N. (Retd.), and Mrs. Bremner, Old Manse, Fochabers, Robin had been an enthusiastic member of the club as a schoolboy and never missed paying us a visit when on leave. He was well liked by all and his passing is deeply regretted.

Our runways have been completely clear of snow this year but strong winds have cost us several days' flying. However, we have been getting excellent launch heights on autotow, the best being Sarah Wilson's 2,700 ft. in the Swallow. Wave has been in evidence on several days, but the only contact was made by the Swallow, which went to 13,800 ft. for a Gold gain. We hope this is only the first of many such flights this year, as the Tiger has just returned after a long absence.

A dozen members took three aircraft to Portmoak one week-end. Mixed weather allowed some ridge soaring but no "legs" were gained.

Our C.F.I., Derek Marpole, is leaving us for the Army, where he hopes to fly helicopters. We wish him well in his new venture and trust he will be able to continue gliding under new colours. Jim Gunter has agreed to fill the breach once again.

H. D.

## RAFGSA (Bicester)

SOARING really got under way in March and the first C duration legs fell to Pete Abbey and John Bennett, the former missing a Bronze leg by five minutes. Later in the month Lou Costello soared a local ridge for 5 hrs. 40 mins., Peter Blackburn did the third C duration leg, and Deidre Wasser our first Silver height leg of the year.

On the technical side, fettling of new gliders has been high in the list of tasks in readiness for the Nationals. The radio trials have been successfully concluded and a number of Ultra lightweight sets and associated mobile ground stations have been ordered. The advantage of carrying radio in high performance machines on all soaring flights has been conclusively proved on more than one occasion recently.

In the previous issue I mentioned the departure of our Chairman, as a parting gesture of appreciation to the Centre's permanent staff, Robbie took them and their wives out to dinner, and judging by appearances the next day, particularly of our C.F.I., a good evening was had by one and all. Andy Gough summed up our feelings when he thanked him for his untiring efforts as Chairman and presented him with a travelling alarm clock.

A. E. B.

## WREKIN

THE Wrekin Gliding Club is now getting into full swing as the soaring season arrives. A number of our members have enjoyed the facilities of our friends at the Long Mynd, and soared the ridge and wave there. "Abo" Maunton got his five hours in wave and completed his Silver C—he narrowly missed Gold height.

Hamish Brown and Chris "Woody" Woodier achieved their briefed tasks for first cross-country and Silver distance. Our Skylark 3 took Adrian Dalton off to Grantham for its first cross-country of the season.

The site at Cosford is living up to its promise, and wave has often been contacted in the last two weeks, both from winch and from aerotow—climbs of up to 6,500 ft. having been achieved. Thermal soaring at the Easter soaring camp was excellent if turbulent. We were able to offer our friends from the Staffordshire club some good and interesting flying when they visited us during this period, bringing their Capstan and Tiger Moth with them. We certainly benefited from their stay—we hope they enjoyed it as much as we did.

We now have a retrieve vehicle, and hope to use it to the full. Members are

*The Phoenix Club trailer designed and built by Pete Dawson.*

wandering round muttering something like "Gold C distance rosters"—we hope to have several names ticked off the list by the time our next news appears in these pages! H. F. O.

## PHOENIX
## (Bruggen, Germany)

SEVERAL months have passed since Phoenix was last in the news but all has not been quiet here. Many changes have taken place.

We were sorry to say good-bye to our Chairman, Tom Page, who is now stationed in England. Bruce Thompson took over the Chairmanship from him but was posted to Laarbruch within a very short time of his appointment. Our present Chairman is Don Stewart — and long may he remain with us.

Numerous accommodation changes have taken place in the club over the past few months; mostly to our disadvantage. The clubhouse is now 2½ miles from our workshops and hangar — these in turn are divided between 3 buildings, one about a mile away from the others. Our hangar is some distance from the airfield and in order to transport the aircraft along the camp roads without having to rig and de-rig them daily Pete Dawson, our C.F.I., designed and built a special trailer.

We had an extremely successful expedition to Issoire early in the year (see page 216).

Thanks to Ray Passfield, Dennis Bowley and Ken Phipps, who made the greatest progress in R.A.F. Germany throughout the year, R.A.F. Brüggen is the present holder of the NATO Cup.

Mike Flint made our first cross-country trip of the year on 1st April. He landed at Brauweiler to gain his 50 kms. Tom Harding has now left us for Bicester and Dave Howell for Colerne.

Our present fleet consists of a Ka-2, Ka-4, Ka-6, two Swallows and a Grunau and flying with us we have a Ka-2 which is privately owned by Don Austin and Dennis Bowley. J. B.

## FAR EAST AIR FORCE
## (Singapore)

IN February the club completed its first full year of flying. In that time we have achieved 3,000 launches and 150 hours. This has been accomplished with just one T-31 for six months and T-31 plus Tutor for the remainder of the year. Our original "home-built" winch has given sterling service and is now being converted to twin drums.

The fleet consists of two T-31's and a Tutor, shortly to be augmented by a Grunau 3, which, we hope, is in transit

from U.K. together with a second winch.

The club members are drawn from all the Services on the island. Interest and membership figures increase constantly, and with our second winch we will be able to cater for all who want to glide in Singapore.

The club welcomes the recent appointment of Stew Mead to the position of C.F.I. He has arrived on the airfield in the middle of the monsoon season, which will be with us till February. The airfield at Sembewang is sometimes so wet that an amphibious vehicle would be a distinct advantage for cable retrieving—although it would deprive our stalwart tractor drivers of their weekly mud bath treatment! Despite the wet we are lucky by U.K. weather standards, in our year of operation we have never had to stop flying for a complete week-end due to weather. Add to this an all-year-round supply of thermals!

Plans for the future include training/soaring camps at Kluang (about 60 miles north in the centre of Malaya), where our Singapore height limitation (1,500 ft.) will be raised somewhat (to 17,000 ft.!).

Despite numerous setbacks the club has made good progress in its first two years and gliding is now a well-established sport on Singapore island. With the superb gliding weather experienced in this part of South-East Asia, the records are all waiting to be set as soon as a hot ship becomes available.

R. G. L.

# OVERSEAS NEWS


We would be pleased to receive new for this sections from every country in the world where soaring is done.—A. E. SLATER, *Overseas News Editor.*

## ARGENTINA

ALTITUDE WITHOUT OXYGEN.—A story of an Argentinian pilot who reached 39,000 ft. without oxygen has been translated into English for the first time by Gregory Banak and appears in *Soaring* for Feb., 1967. The actual flight took place a year earlier.

The pilot, Abel Sintora, had considerable experience in altitude flying in the Argentine Air Force, but was relatively inexperienced in soaring. He took off in a Blanik with the intention of getting his Gold C altitude leg. After release at 2,300 ft. he soon got under a cu-nim into lift of 600 f.p.m., which increased to 1,400-1,600 f.p.m. and took him to 14,800 ft. without difficulty. He then left the cu-nim, having no oxygen, but then saw another huge cu-nim, whose top was estimated by airline pilots to be at 49,000 ft. He was tempted into this by the prospect of acquiring an altitude Diamond. In this, cloud lift improved from 1,000 to 6,000 f.p.m. He eventually reached a height at which he estimated that five more turns would take him to 26,000 ft., so he took a look at his finger-nails and carried on. He was still fully conscious at 21,000 ft., but only half conscious at 26,000 ft. when he passed out.

The pilot recovered consciousness at 3,000 ft., finding himself descending in a steep spiral with the outer portions

of both wings missing and the fuselage twisted 25 degrees between the cockpit and tail. On nearing the ground, the machine flattened out somewhat, and hit the ground with one wing and then with the fuselage, but he was securely strapped in and was quite uninjured.

The barograph showed that he had reached 39,000 ft., the final strength of the lift being 8,000 f.p.m. After that the trace was smeared, showing extreme turbulence, and the actual speed of descent varied between 190-250 mp.h. Although Simona had hoped for a world's Absolute Altitude record, the Argentinian Aero Club agreed only to an altitude gain of 37,000 ft.

EDITORIAL NOTE.— On 5th September, 1862, James Glaisher, an elderly scientist, and Henry Coxwell, a balloonist, ascended in a balloon without oxygen to a height they estimated as 37,000 feet, and came down alive. Experts have hitherto refused to believe this figure. See SAILPLANE & GLIDING, December, 1962, page 451.

## AUSTRIA

ETRICH.—The death of this famous aviation pioneer on 7th February at Salzburg is announced. He was best known for the very bird-like "Etrich-Taube" monoplane, actually modelled on one of nature's gliders, the "Zanonia" leaf. For many years before that, he was working on similar lines to the British pioneer José Weiss, who was specially interested in soaring flight and built the glider which made the first soaring flight in England. Etrich's name is coupled with that of Weiss in the title of the longest chapter in J. B. Weiss's book "Gliding and Soaring Flight".

NEW RECORD.—An Austrian National record for Goal-and-Return flight has been set up by Erich Gehrer with 575 km. in a Diamant. *Austroflug*

## BELGIUM

DURING 1966, in 21 clubs, 787 members put up 7,826 hours' flying. *Conquête de l'Air*



## CANADA

THE only commercial gliding school in Western Canada has been opened at Abbotsford, British Columbia. Under the direction of A. E. Seller, it operates with a Schweizer 2-32. *Soaring*

## FINLAND

INVITATION TO PILOTS. — Hereby we invite pilots to take part in the 5th Räyskälä Gliding Competition at Räyskälä Gliding Centre in Finland from 2nd-17th July, 1967. The competition takes place in the Open Class and has two series:—

(1) Individual competition in which the same pilot flies every competition day. The winner is the pilot with the highest number of points.

(2) Team competition. The team consists of two pilots, each of whom flies every second day. The winner is the team with the highest points.

Competition rules comply in the main with the F.A.I. World Championship rules.

Launching is by aero-tow. The competition map is on the scale of 1:400,000. Lodgings will be at the airfield, where also meals will be served. The charge is U.S. $5 per person per day, or equivalent. It covers aero-tows, lodgings and meals, and it can be paid upon arrival. Entry forms should be sent to the organizer not later than 15th May to the Räyskälä-Foundation, Juhani Horma, Parolantie 15 C 24, Hämeenlinna, Finland.

This invitation has been sent to the national Aero Clubs of Denmark, England, France, Eastern Germany, Western Germany, Iceland, Norway, Poland, Soviet Union and Sweden.

We heartily welcome you to Räyskälä, and hope to have a pleasant gliding fortnight in Finland with you.

JUHANI HORMA, *Secretary*,
Finnish Aeronautical Association.

## FRANCE

NATIONAL CHAMPIONSHIPS. — Bourges Aerodrome has been finally chosen for the 1967 Gliding Championships, to be held from Thursday, 27th July, to Sunday, 6th August; that is, they start 4 days after the end of the "Huit Jours d'Angers" contest.

Entrants will be the first 15 in last year's Nationals, plus those selected by elimination trials in the civil and military Regions. The total number will be about 50, divided into two categories according to the type of machine flown. Category 1 includes Edelweiss, Breguet 901, M-200, Austria, Foka, Ka-6E, Zugvogel 3 and other sailplanes with a best gliding ratio of over 31. Category 2 includes all the rest. The results in the two categories will be classified separately, and the organizers reserve the right to give them different tasks. A Champion of France will be declared in each category.

The use of radio will be forbidden.

SUPER EDELWEISS.—Under development for next year's World Championships, the Edelweiss 4 will have a higher-speed wing section, with modifications to the fuselage nose and better visibility, but the rear of the fuselage and tail are unchanged. The gliding ratio should be between 39 and 40. The design study is by Bertin under the direction of Cayla; the machine is being built by the SIREN firm, and its first flight is expected at the end of this year. It will be a one-off type, as it is intended as a transitional stage towards a still higher performance machine to appear about 1970.

*Aviasport*

HUIT JOURS D'ANGERS.—This event will take place from Thursday, 13th, to Sunday, 23rd July. At least 50% of the participants are expected to come from abroad. The regulations will be similar to those of the National Championships immediately following, except that radio will be allowed, and there will be a single classification irrespective of the type of sailplane flown. *Air et Cosmos*

MOUNTAIN SOARING CONTEST.—Among visiting pilots at this event at Verdon Alpilles is Lieut.-Commdr. Humphry Dimock from England. M. MARCY

## IRELAND (Dublin)

BAD weather and high winds have upset most week-ends since our last report. Just one really good day was enjoyed with many members sampling a local ridge. Up to five gliders shared the ridge with no sign of congestion. Dave Hooper made 5 hours in the Petrel to complete his Silver C, and Ray Treacy had his first flight in the Petrel, having recently joined the syndicate.

Twice this year a two-way radio contact has been achieved on 130.4 across the Irish sea, once into Wales and once into Shropshire, proving the range of our low-power equipment. This, incidentally, was in wave conditions when the inversion would improve V.H.F. propagation due to refraction, but still pretty good for 300 milliwatts. The Terrier is back with a new C. of A., and our C.F.I., Gerry Connolly, has been checked out for tugging. C. GARR

## ITALY

NATIONAL CHAMPIONSHIPS.—These will be held from 2nd to 12th August at the Rieti Aero Club's airfield, in competition for the Trophäe Cenni.

*Der Flieger*

## NEW ZEALAND

CENTRAL DISTRICT GLIDING CHAMPIONSHIPS.—These were organized at Easter by the Wairarapa Aero Club (gliding section) based at Hood Aerodrome, Masterton.

Eleven gliders were entered, including Gordon Hooking's Skylark 4 from Auckland, Ian Findlayson's K-6E from Hamilton, and Ross Carmichael brought his K-6CR down from Matamata. Locally, three Olympia 463's, another K-6E and K-6CR, along with a Dart 17R, a Standard Austria and the Wairarapa Bergfalke, flown two up, were entered.

Tasksetter Peter Heginbotham decided a no-contest day on Good Friday, which was rather wet.

However, a 20-knot S.W. wind next day gave indications of wave, and he set a 110-km. out-and-return to Pirinoa (to the south). Launches to 2,500 ft. gave some chance of picking up the wave, although Ian Findlayson (K-6E) and Arie van Dyk (K-6CR) both put up impressive displays of thermalling overhead early in the day. Only three completed the course, all in wave (or rotor). Both Des Renner and Ross MacIntyre (463's) didn't cross the start line and took the time penalty this involved rather than miss out on the wave. Gordon Hookings did cross the line and his speed of 94 k.p.h. was the fastest.

Sunday: Task, 80-km. speed triangle. South-west to Featherstone, east to Martinborough, then northwards to Hood again.

Forecast, cloud base was 2,000 ft., but it was actually 4,500-5,300 ft. Thermals were well apart but up to 600 ft./min. on occasions. Wind, light southerly.

Ian Findlayson showed his expertise with the 6E by arriving home with an average speed of 57 k.p.h. Five others got home with speeds of 45 to 38 k.p.h. Hank Courtenay (Dart 17R) found an interesting paddock near Featherstone. It appears that the nearest farmhouse was the local . . . well, the red light should have been a warning! Hookings led overall.

Monday: Task, out-and-return to Hamua (90 km.). This task took pilots to the north of Masterton to a point five miles past Eketahuna. Thermals once again strong, but the forecast 5-knot southerly turned out to be a 10-15-knot north-easterly, and the last leg was really downhill. Five completed the task. Only Renner and Barber among the top six overall places to date were in these five. So the final placings were altered somewhat. Arie van Dyk (K-6CR) did a very fast trip to complete the course at 55 k.p.h. Hank Courtenay (Dart 17R) was very unlucky; he completed the course but was unable to sustain his landing run sufficiently to cross the finish line.

| *Leading final results* | | *Pts.* |
|---|---|---|
| 1. D. Renner | Oly 463 | 2532 |
| 2. G. Hookings | Skylark 4 | 2015 |
| 3. R. MacIntyre | Oly 463 | 1886 |

ROSS MACINTYRE

## POLAND

THE Nationals will be from 4th to 18th June, but not at Leszno, which is being prepared for the world championships.

## RHODESIA (Bulawayo)

GLIDING in this part of the world received a fillip when clubs from Salisbury and the Midlands (Gwelo) travelled to Bulawayo for a "get-together" at Induna Aerodrome on the site used for training R.A.F. aircrews during World War II.

This Easter meeting was the largest ever held at Bulawayo and involved the Salisbury and Gwelo pilots in round trips of 600 and 200 miles respectively. The Salisbury Blanik was aero-towed by their recently acquired Piper Super Cruiser, over ground studded with thorn bushes and all three pilots were glad when the trip was safely accomplished. The Salisbury pilots also trailered down two Vasama's, a Ka-6 and a Swallow. Gwelo pilots brought their S-18 and a Skylark.

The weather was fine and warm and on Good Friday afternoon the machines were rigged, checked and polished in readiness for the Open Day which took place on Saturday. Prior publicity in the Press and on television resulted in a large supporting crowd headed by His Worship, the Mayor of Bulawayo, who appeared on this occasion in his role as President of the Bulawayo Gliding Club.

The programme included sky-diving, radio-controlled model aircraft, passenger flips, a demonstration winch launch and a display of glider aerobatics which were expertly executed by Doug Elliott, the Salisbury C.F.I.

On Sunday the weather remained favourable and at one stage, the sky was full of gyrating sailplanes whose pilots could be heard on the R/T exchanging information concerning the strength of their respective thermals.

A most pleasant weekend overall, and the number of applications for membership that have been submitted to our Hon. Sec, augers well for the future.

In this connection, the Midlands (Gwelo) Club intends to hold a Gliding Camp in May for pupil pilots who are desirous of intensifying their training and in October the limited and restricted class championships will also take place at Gwelo.

J. K. BIRTLE

## SOVIET UNION

A FLAPPING-WING flying machine, the Letatlin, designed by the Russian inventor Vladimir Tatlin in the 'thirties, has been renovated and will be tested to see if it can really fly. Assembled from the components that were left intact, the machine looks very impressive, with good lines and an unusual shape.

Thirty-five years ago Vladimir Tatlin, an artist, began designing flying machines. With two pupils he retired for several years to an ancient monastery in Moscow to experiment on a "flying bicycle". In 1931 he designed three ornithopters, which proved in tests that they could fly.

*Novosti Information Service*

## SWEDEN

KEBNEKAISELAGRET 1967.—The Easter camp on the frozen lake at Pirttivupio this year was highly successful. Some 100 people attended from Finland and Sweden, bringing an assortment of sailplanes and tugs. These included three Bergfalke, a Zugvogel, and Mucha Standard, and two Super Cubs from Sweden (no Tiger Moth this year —alas, the propeller fell off); two Ka-6's, the PIK-17, PIK-12, five Vasamas, a PIK-3 (Kajava), Blanik, and the new all-plastic and very pretty UTU, and the Zlin Trener Master, PIK-15, and Cessna 172 from Finland.

During the 14 days a total of 703 starts, 617 hours, were flown by the sailplanes, with 12 flights above 5,000 metres and 16 above 4,000 metres. Four Silver distances were flown, by Rolf Larsson, Stig Ericsson Gustav Bergstrom and Ansi Sastamoinen, all to Altujarvi, a suitably situated lake close to Kiruna (retrieves were by aerotow, and since no strip had been ploughed the take-off runs were inclined to be long and interesting). Seven five-hour durations were achieved by hardy souls prepared to risk frostbite, and there was the usual proportion of 4¾-hour tragedies.

Best heights were 6,400 metres (21,000 ft.) by Aake Svenson and 5,750 metres by Niemi. These were made on the "day of the wind", when long, grinding tows were necessary to reach the best parts of the wave and the turbulence was significant. On such a day the mountains around about appear very dramatic with the tops lost in cloud and forbidding-looking rotors lying across the valleys. In marked contrast with the following day, which was sparkling clear, white and beautiful, ideal for training flights.

At present it is only possible to exploit this area, which is so rich in waves, in the spring when the lake is frozen, since there is no suitable strip on the land. The Kiruna gliding club are investigating the possibility of acquiring a strip, but of course there are difficulties, and meanwhile summer operations are limited to Kiruna airport. This means mainly school flying, as there are practically no thermals, and only occasional waves so far from the mountains.

The Finnish UTU Standard Class sailplane was brought to the camp by the manufacturers for demonstration purposes, and was flown by most of the pilots present. It is very well finished indeed and is easy to rig. The cockpit layout is well arranged, with good placing of the controls and plenty of leg room. On the other hand, the writer found his head rather wedged between canopy and chest (why do designers put exotic fully reclining cockpits on club-

type gliders?). However, the UTU was pleasant to fly, although some pilots found the elevator a bit sensitive on tow, and it was very quiet, even with the usefully large, clear vision panel open.

The last two days of the camp brought snow and no flying and rather grim road conditions for the Finns on their 1,000-mile trail home—but then one expects a bit of snow in the Arctic.

HARRY MIDWOOD

## SWITZERLAND

NATIONAL CHAMPIONSHIPS.—These will be held from 9th to 18th June at Grenchen. Participants will be the 12 members of the "national team", the six best from the three Regional Championships, held for the first time last year, and the six top scorers in the 1966 decentralized contest; also a leading pilot from each of four countries—Germany, France, Italy and Austria—will be invited.

The six who do best in these Championships will undergo training in preparation for next year's World Championships in Poland, and four of the six will be finally selected. (Last time the World Champs. were held in Poland, 1958, the Swiss did not take part.—ED.) For further practice in preparation for this event, Swiss pilots will take part in the French, Austrian and Italian Nationals (one in each), the German contest at Hahnweide, and the Huit Jours d'Angers.

*Swiss Aero Club*

NEW OPEN CLASS SAILPLANE.—The AN-66, being produced by A. Neukom, is expected to have a gliding ratio of 45 at 96 km./h., and a minimum sink of 50 cm./sec. (1 ft. 7:7 in./sec.) at 75 km./h. The wing span is 18 metres, aspect ratio 23.2, with an Eppler section 441. Wing loading is 28.6 kg./sq. m. (5.84 lb./sq. ft.) at all-up weight 400 kg. (882 lb.). Empty weight is 280 kg. (617 lb.). Schempp-Hirth airbrakes are at 70% chord, just in front of the flaps, which, with the ailerons, occupy the whole span. At speeds of 100, 150 and 200 km./h., sink is 0.65, 1.40 and 3 m./s. respectively. Gliding ratio is 40, 35 and 30 at speeds of 75, 120 and 150 km./h.

The machine has a V tail.

*Air et Cosmos*

## SOUTH AFRICA

I HAVE just returned from a trip to South Africa, and whilst there met Tony Hyde, until recently the C.F.I. of the East Anglia Gliding Club. At first his activities made me wonder whether he was giving up gliding altogether—after all, he did have the bad luck to chew up his own T-31 just before he left Nairobi whilst delivering it to Dr. Hugh Lamprey, of the Serengeti Research Station (but this is yet another story in itself).

Tony and his wife have just opened up boarding kennels not far from Johannesburg, at Pretoria, to be precise. At first I thought that this was because his dog-breeding abilities might be better than his flying, but I have since seen the place and it has a ridge at the back with the prevailing wind on to it and 22 acres of ground as part of the "estate". They are charging a fee for training dogs, so this is it; bungee Alsatian launches for S.A. ridge-soaring looks like being on the market during the next S.A. Championships. Tony is sure the ridge will work, and if I was a bird-owner in S.A. I couldn't resist contacting him to look at his ridge and give it a try! After all, it is only about four or five miles from Wonderboom and 30 from Baragwanath.

So, if you do plan to bring your glider and your dog to S.A., trust the dog to Eileen, but think twice about parking your caravan/trailer in his 22 acres and pushing off to the coast for a week, because he is itching to have a go at this ridge.

Tony sends regards to his many friends

in England and, for the book, his address is now: Motswedi Kennels, Post Box 15022, Lynneast, Pretoria, Transvaal, S. Africa.

BOB HEATH

## WEST GERMANY

GLIDING FORECASTS.—From 1st March, weather forecasts for sailplane pilots have been broadcast daily at 8.30 a.m. by the South German Radio. The routine is: (1) short description of weather situation — highs, lows, fronts and their movements; (2) air masses, inversion heights and whether rising or sinking, time or ground temperature for onset of thermals, freezing level; (3) cloud types and their development and distribution; (4) wind at various levels to 20,000 ft.; (5) various phenomena, as turbulence, thunderstorms, foehn, etc., and also the soaring conditions in other parts of the country than Baden-Württemberg (to which the forecast applies primarily).

*Der Adler*

ACCIDENT REPORT.—There were 57 serious sailplane accidents in 1966 compared with 66 in 1965, and 4 with motorized sailplanes, as in 1965. Of these, 31 were on landing (one fatality); 7 during winch launch (one fatality); 2 during aero-tow (both fatal); one due to cable break (instructor and pupil severely injured); 4 in slope-soaring; 6 collisions with 7 deaths; 10 stall-and-spin (3 fatal); and one in which the pilot lit a cigarette and set his cockpit on fire — it was put out after landing but the sailplane was severely damaged.

Of the four motorized sailplane accidents (2 fatal), three were due to faulty flying. As to the fourth: "RF 3 — Dr. W. in der Luft auseinandergebrochen" — literally, the machine and pilot broke away from each other in the air; cause of the incident is not yet clarified.

*Aerokurier*

KLIPPENECK.—The Regional Contest at Klippeneck (where the German Nationals were held in 1952) will be from 15th to 21st June.

## INDEX TO ADVERTISERS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